

Table 7-41. Summary of Reasonableness Determination Data – Alternative 2 – Soundwalls S1016, S1020, S1022, and S1024

Barrier I.D.: S1016, S1020, S1022, S1024					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.65					
Design Year Noise Level, dBA L _{eq} (h): 74					
Design Year Noise Level Minus Existing Noise Level: 5					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	0	4	5
Number of Benefited Residences	N/A	N/A	N/A	N/A	8
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$47,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$376,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwalls S1026 and S1028: These soundwalls would be located at the right-of-way line along the northbound side of I-405. Soundwall S1026 would be a southern extension of Soundwall S1028 which would replace and heighten a portion of the south end of an existing soundwall at its current location. Soundwall S1026 would also extend the coverage of the adjoining existing soundwall to compensate for the encroachment of I-405 onto the existing embankment of the Springdale Street overcrossing that would occur under Alternative 2. The reconfigured embankment would increase the exposure of nearby homes to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of four single family residences in this area; however, feasible noise reduction could only be obtained at one of the residences represented by Receiver R4.66. Together, Soundwalls S1026 and S1028 would provide at least 5 dB of noise reduction for this residence. Figure 18 in Appendix A2 shows the minimum heights and lengths of Soundwalls S1026 and S1028 to provide feasible abatement. Table 7-42 summarizes predicted soundwall performance and associated cost allowance information.

Soundwalls S1083: Soundwall S1083 would be located at the right-of-way line along the southbound side of I-405. Soundwall S1083 would extend an existing soundwall to the north. Soundwall S1083 would replace an existing soundwall that was located within the right-of way; however, due to the widening of I-405 and the topography of the area, an in-kind replacement soundwall within the right-of-way was not analyzed because the most effective location of a soundwall for this area would be at the right-of way line. Traffic noise impacts are predicted within the outdoor frequent use areas of nine single-family residences in this area. Soundwall S1083 would provide at least 5 dB of noise reduction for five of the nine residences. Figure 20 in Appendix A2 shows the minimum heights and lengths of Soundwall S1083 to provide feasible abatement. Table 7-43 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-42. Summary of Reasonableness Determination Data – Alternative 2 -- Soundwalls S1026 and S1028

Barrier I.D.: S1026, S1028					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.66					
Design Year Noise Level, dBA $L_{eq}(h)$: 72					
Design Year Noise Level Minus Existing Noise Level: 1					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	0	4	5
Number of Benefited Residences	N/A	N/A	N/A	N/A	1
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$45,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$45,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Table 7-43. Summary of Reasonableness Determination Data – Alternative 2 – Soundwall S1083

Barrier I.D.: S1083					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.62					
Design Year Noise Level, dBA $L_{eq}(h)$: 70					
Design Year Noise Level Minus Existing Noise Level: 8					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	3	5	6	7	8
Number of Benefited Residences	N/A	2	3	5	5
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	N/A	\$49,000	\$51,000	\$51,000	\$51,000
Total Reasonable Allowance	N/A	\$98,000	\$153,000	\$255,000	\$255,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Areas without Feasible Noise Abatement

Receivers R4.2 through R4.6: Traffic noise impacts would occur at eight single-family residences as well as Willow Lane Town and Country School along the southbound side of I-405 along Willow Lane and Mahogany Avenue despite the presence of an existing 10 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-10 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 17 in Appendix A2 shows these receivers.

Receivers R4.14A through R4.15 and R4.17: Traffic noise impacts would occur at 11 first row single family residences along the northbound side of I-405 along Sowell Avenue north of Goldenwest Street. These receivers would be protected by Soundwall S182 located at the edge of the shoulder which would be an in-kind replacement of the existing soundwall located at the current edge of shoulder. However, Soundwall S182 would not provide 5 dB or more of noise reduction when raised above the in-kind height of 10-feet. The soundwall analysis is summarized in Table G-10 demonstrates that Soundwall S182 would not provide 5 dB or more of noise reduction at the 11 impacted residences. Figure 16 in Appendix A2 show these receivers.

Receivers R4.27 through R4.29, and R4.31A: Traffic noise impacts would occur at the patio areas of six multi-family residences along the northbound side of I-405 between Edwards Street and Westminster Boulevard despite the presence of an existing 14 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-10 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 17 in Appendix A2 shows these receivers.

Receivers R4.35 through R4.58: Traffic noise impacts would occur at the frequent outdoor use areas of 59 first row and eight second row single-family residences along the southbound side of I-405 between Springdale Street and Valley View Street despite the presence of an existing 12 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-10 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 18 through 20 in Appendix A2 show these receivers.

Receivers R4.67 through R4.83B: Traffic noise impacts would occur at 49 single-family residential units and 30 mobile homes along the northbound side of I-405 between Springdale Street and Valley View Street despite the presence of an intervening existing 12 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-10 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 18 through 20 in Appendix A2 show these receivers.

7.2.2.5. SEGMENT 5 – VALLEY VIEW STREET TO SEAL BEACH BOULEVARD

Areas with Noise Abatement

Soundwall S1116: Soundwall S1116 would replace a portion of an existing soundwall along the northbound side of I-405. It would be located at the edge of shoulder. This in-kind replacement would be necessitated by the encroachment of the project onto this portion of the existing soundwall. At two of the residences behind this soundwall, traffic noise impacts are predicted under Alternative 2 even with in-kind replacement of this segment of the existing 18-foot high soundwall. Figure 21 in Appendix A2 shows the location and height of in-kind replacement Soundwall S1116 along with the portions of the associated existing soundwall that would remain.

Soundwall S1142: Soundwall S1142 would replace a portion of an existing soundwall along the northbound side of I-405. It would be located at the edge of shoulder. This in-kind replacement would be necessitated by the encroachment of the project onto this portion of the existing soundwall. At 24 of the residences behind this soundwall, traffic noise impacts are predicted

under Alternative 2 even with in-kind replacement of this segment of the existing 18-foot high soundwall. Figures 21 and 22 in Appendix A2 show the location and height of in-kind replacement Soundwall S1142 along with the portions of the associated existing soundwall that would remain.

Soundwall S1162: Soundwall S1162 would be located at the edge of shoulder along the northbound side of I-405. It would provide abatement for the City of Seal Beach Tennis Court Center, an area that already experiences some noise reduction from a combination of an existing property wall and berm. The noise analysis indicates that a 5 dB noise reduction would only be achieved at one of the two modeled receivers positioned behind this barrier. Figures 22 and 23 in Appendix A2 show the minimum heights and length of Soundwall S1162 to achieve at least a 5 dB noise reduction at this tennis facility. Table 7-44 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-44. Summary of Reasonableness Determination Data – Alternative 2 – Soundwall S1162

Barrier I.D.: S1162					
Predicted Sound Level without Barrier					
Critical Design Receiver: R5.39					
Design Year Noise Level, dBA $L_{eq}(h)$: 67					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Footer Barrier	10-Footer Barrier	12-Footer Barrier	14-Footer Barrier ^c	16-Footer Barrier ^c
Barrier Noise Reduction, dB	0	2	5	2	3
Number of Benefited Residences	N/A	N/A	1	N/A	N/A
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	Yes	N/A	N/A
Reasonable Allowance Per Benefited Residence	N/A	N/A	\$43,000	N/A	N/A
Total Reasonable Allowance	N/A	N/A	\$43,000	N/A	N/A

Note: NA-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a An NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

^c These results are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

Areas without Feasible Noise Abatement

Receivers R5.17 and R5.23: Receivers R5.17 and R5.23 are behind portions of an existing 18-foot high soundwall between Violet and Aster Streets along northbound I-405 that would not need to be replaced under Alternative 2. They would experience traffic noise impacts despite the presence of the soundwall. These receivers represent two single family residences and Shapell Park. Figure 21 in Appendix A2 shows these receivers.

Receiver R5.19: Receiver R5.19 would be behind a portion of an existing 18-foot high soundwall between Violet and Aster Streets that would need to be replaced in kind by Soundwall S1116 because it would be demolished under Alternative 2. This receiver represents two single

family residences that would experience traffic noise impacts despite the presence of the reconfigured soundwall. Figure 21 in Appendix A2 shows this receiver.

Receivers R5.28, R5.30, R5.32, R5.33, R5.35, R5.37, and R5.38: Along the northbound side of I-405 between Iris Circle and Aster Street, 22 single family residences and Blue Bell Park would be exposed to traffic noise impacts under Alternative 2. These impacts would occur in spite of the presence of an 18-foot high replacement Soundwall S1142. Figure 22 in Appendix A2 shows these receivers.

Receiver R5.40: The noise impact analysis indicates that Soundwall S1162 would not provide 5 or more dB of noise reduction at a portion of the tennis courts represented by Receiver R5.40. Figure 23 in Appendix A2 shows this receiver.

7.2.2.6. SEGMENT 6 –SEAL BEACH BOULEVARD TO I-605

Areas with Noise Abatement

Soundwall S431: Soundwall S431 would be an in-kind replacement of the existing 10- to 14-foot high soundwall at the right-of-way line due to the necessity of constructing a retaining wall at the edge of shoulder in this area. At 20 of the residences behind this soundwall, traffic noise impacts are predicted under Alternative 2 even with the in-kind replacement of the existing soundwall and increasing the height would not provide feasible noise reduction. Figures 24 and 25 in Appendix A2 show the location and height of Soundwall S431.

Soundwall S434: Soundwall S434 would replace a portion of an existing soundwall along the northbound side of I-405. It would be located at the edge of shoulder. Soundwall S434 has been proposed for the SR-22 West County Connectors Project and currently does not exist; however, due to the widening of I-405, the proposed soundwall under the SR-22 project will need to be moved to follow the I-405 project's proposed on-ramp from Old Ranch Parkway. At nine of the residences behind this soundwall, traffic noise impacts are predicted under Alternative 2 even with the in-kind replacement of this segment of the existing soundwall and increasing the height would not provide feasible noise reduction. Figure 24 in Appendix A2 shows the location and height of Soundwall S434 along with the portions of the associated existing soundwall that would remain.

Soundwall S445: Soundwall S445 would replace a portion of an existing soundwall along the southbound side of the eastbound SR-22 to southbound I-405 connector edge of shoulder. Soundwall S445 has been proposed for the SR-22 West County Connectors Project and currently does not exist; however, due to the widening of I-405, the proposed soundwall under the SR-22 project will need to be moved to follow the I-405 project's proposed alignment. There would be no traffic noise impacts behind this soundwall. Figure 25 in Appendix A2 shows the location and height of Soundwall S445 along with the portions of the associated existing soundwall that would remain.

Soundwall S1226: This soundwall would be located at the right-of-way line along the northbound side of I-405 and would extend to connect to an existing soundwall to the east. The purpose of Soundwall S1226 is to extend the coverage of the existing soundwall to compensate for the encroachment of I-405 onto the existing northbound I-405 to westbound SR-22 embankment that would occur under Alternative 2. The existing embankment currently protects

this area; however, the reconfigured embankment/retaining wall would expose this area to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of nine single-family residences in this area. Soundwall S1226 would provide at least 5 dB of noise reduction for three single-family residences. Figure 25 in Appendix A2 shows the minimum heights and length of Soundwall S1226 to provide feasible abatement. Table 7-45 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-45. Summary of Reasonableness Determination Data – Alternative 2 – Soundwall S1226

Barrier I.D.: S1226					
Predicted Sound Level without Barrier					
Critical Design Receiver: R6.36A					
Design Year Noise Level, dBA $L_{eq}(h)$: 71					
Design Year Noise Level Minus Existing Noise Level: 5					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	1	3	4	4	5
Number of Benefited Residences	N/A	N/A	N/A	N/A	3
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$47,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$141,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S464: Soundwall S464 would be an in-kind replacement soundwall of a proposed soundwall under the SR-22 West County Connectors Project that would need to be replaced due to the additional widening of I-405 under the I-405 project. Traffic noise impacts are predicted within the outdoor frequent use areas of two single-family residences in this area but this soundwall would not provide 5 dB or more of traffic noise reduction. Figure 26 in Appendix A2 shows the location and height of Soundwall S464.

Areas without Feasible Noise Abatement

Receivers R6.2, R6.3, R6.6, and R6.8 through R6.11: Traffic noise impacts would occur at 20 multi-family residential units of Leisure World retirement community along the southbound side of I-405 between Beverly Manor and Del Monte Drives despite the presence of 10- to 14-foot high Soundwall S431, which is an in-kind replacement soundwall. The soundwall analysis summarized in Table G-12 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 24 and 25 in Appendix A2 show these receivers.

Receiver R6.24: Traffic noise impacts would occur at three single-family residences along the northbound side of I-405 on Yellowtail Drive between Silverfox Road and Druid Lane. This receiver is protected by an existing 10-foot high soundwall located along Old Ranch Parkway. However, replacing the existing soundwall with a higher soundwall would not provide 5 dB or

more of noise reduction. The soundwall analysis is summarized in Table G-12 demonstrates that 5 dB or more of noise reduction would not be achieved at the impacted residences. Figure 16 in Appendix A2 shows this receiver.

Receivers R6.26 through R6.29: Traffic noise impacts would occur at nine single-family residences along the northbound side of I-405 on Yellowtail Drive between Silverfox Road and Druid Lane despite the presence of Soundwall S434 which is a 14-foot high in-kind replacement soundwall. The soundwall analysis summarized in Table G-12 demonstrates that replacing the in-kind replacement soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 24 in Appendix A2 shows these receivers.

Receivers R6.31 and R6.34A: Traffic noise impacts would occur at the frequent outdoor use areas of five single-family residences along the northbound side of I-405 on Yellowtail Drive east of Druid Lane and on Martha Ann Drive at Spur Lane despite the presence of an existing 14 to 14 feet 4 inch high soundwall. This existing soundwall has been proposed for the SR-22 West County Connectors Project and currently does not exist. The soundwall analysis summarized in Table G-12 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 24 and 25 in Appendix A2 show these receivers.

Receivers R6.37 through R6.39, R6.41 through R6.43, R6.45, and R6.46: Traffic noise impacts would occur at 20 single-family residences along the northbound side of I-405 on Martha Ann Drive between Tigertail and Salmon Drives despite the presence of an intervening existing and an in-kind replacement soundwall. Noise reduction of a soundwall higher than 16 feet was not analyzed as part of this traffic noise impact study. Figures 25 and 26 in Appendix A2 show these receivers.

Areas with Unusual and Extraordinary Abatement

Receivers where the predicted peak hour noise level is at or above 75 dBA are to be considered severely impacted. Where severe impacts are identified, unusual and extraordinary abatement must be considered. If a soundwall is determined to be unreasonable based on cost, providing the soundwall for frequent outdoor use areas will still be required when a 5 dB reduction in traffic noise levels is acoustically feasible.

Receiver R2.46: The predicted peak hour traffic noise level is 75 dBA for this receiver and would be considered severely impacted. Receiver R2.46 represents the frontage unit of the preschool playground associated with Huntington Baptist Church. Soundwall S746 would provide the required 5 dB reduction in traffic noise levels.

Receivers R3.48 and R3.50: Predicted peak hour traffic noise levels are at or above 75 dBA for these receivers and would be considered severely impacted. Receivers R3.48 and R3.50 each represent one single family residence. Soundwall S841 would provide the required 5 dB reduction in traffic noise levels at these residences.

Receivers R4.10 and R4.11: Receivers R4.10 and R4.11 respectively represent three and two frontage units of Cascade Park. The predicted peak hour noise level is 75 dBA for these

receivers. Soundwalls S1005 and S1009 would provide the minimum 5 dB reduction in traffic noise for Cascade Park.

Receiver R4.33: The predicted peak hour traffic noise level is above 75 dBA for this receiver and would be considered severely impacted. Receiver R4.33 represents one frontage unit of the pool area at the Motel 6. Soundwall S1006 would provide the required minimum 5 dB reduction in traffic noise to below the severe impact criteria.

7.2.3. Alternative 3

Tables G-13 through G-18 in Appendix G present the results of the barrier analysis. Tables H-13 through H-18 in Appendix H present a summary of soundwall locations and the minimum heights and lengths to achieve at least 5 dB of noise reduction. Appendix H also presents the locations, heights, and lengths of in-kind replacement soundwalls that do not provide feasible abatement. The project limits of the noise analysis for Alternative 3 are south of Bristol Street including the SR-73 interchange south to Bear Street to the I-605 interchange including I-605 south of Katella Avenue. Figures 1 through 28 in Appendix A3 show the proposed alignment for Alternative 3.

7.2.3.1. SEGMENT 1 – SOUTH OF BRISTOL STREET TO EUCLID STREET

Areas with Noise Abatement

Soundwall S502: Soundwall S502 would be an in-kind replacement of the existing 14-foot high soundwall. This soundwall would be located at the edge of shoulder of the northbound off-ramp to Fairview Road and would need to be replaced due to the widening of I-405 in this area. Traffic noise impacts are predicted within the outdoor frequent use areas of eight single-family residences in this area but this soundwall would not provide 5 dB or more of traffic noise reduction. Figures 2 and 3 in Appendix A3 show the location and height of this soundwall.

Soundwall S583: Soundwall S583 would be an in-kind replacement of the existing 14-foot high soundwall. This soundwall would be located at the edge of shoulder of the southbound Harbor Boulevard on-ramp and southbound Fairview Road off-ramp and need to be replaced due to the widening of I-405 and the construction of a proposed retaining wall at the shoulder in this area. Traffic noise impacts are predicted within the outdoor frequent use areas of Gisler Park but this soundwall would not provide 5 dB or more of traffic noise reduction. Figures 3 and 4 in Appendix A3 show the location and height of this soundwall.

Soundwall S614A: Soundwall S614A would be located at the shoulder of the northbound on-ramp from Harbor Boulevard along the northbound side of I-405. Traffic noise impacts are predicted at the pool area of a La Quinta Inn. Soundwall S614A would provide at least 5 dB of noise reduction for this outdoor use area. Figure 4 in Appendix A3 shows the minimum heights and length of Soundwall S614A to provide feasible abatement. Table 7-46 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-46. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S614A

Barrier I.D.: S614A					
Predicted Sound Level without Barrier					
Critical Design Receiver: R1.75					
Design Year Noise Level, dBA $L_{eq}(h)$: 73					
Design Year Noise Level Minus Existing Noise Level: 1					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	7	8	10	11	12
Number of Benefited Residences	1	1	1	1	1
New Highway or More than 50% of Residences Predate 1978 ^b	No	No	No	No	No
Reasonable Allowance Per Benefited Residence	\$37,000	\$37,000	\$39,000	\$39,000	\$41,000
Total Reasonable Allowance	\$37,000	\$37,000	\$39,000	\$39,000	\$41,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S614B (Option): Soundwall S614B would be located on private property along the northbound side of I-405. This soundwall is an option to Soundwall S614A. Traffic noise impacts are predicted at the pool area of a La Quinta Inn in this area. Soundwall S614B would provide at least 5 dB of noise reduction for this outdoor use area. Figure 4 in Appendix A3 shows the minimum heights and length of Soundwall S614A to provide feasible abatement. Table 7-47 summarizes predicted soundwall performance and associated cost allowance information.

Soundwalls S629, S639, and S649: Soundwalls S629, S639, and S649 would be an in-kind replacement of the existing 14-, 16-, and 12-foot high soundwalls, respectively. These soundwalls would be located at the southbound edge of shoulder on retaining walls and need to be replaced due to the widening of I-405 and the construction of a proposed retaining wall at the shoulder in this area. Soundwall S649 would tie into a solid 3-foot high safety barrier on the structure of the southbound on-ramp from Euclid Street. The solid 3-foot high safety barrier along the on-ramp is considered in the noise impact analysis and it must be kept for noise reduction in addition to the safety related issues. Traffic noise impacts are predicted within the outdoor frequent use areas of five multi-family and 25 single-family residences in this area but this soundwall would not provide 5 dB or more of traffic noise reduction. Figures 5 and 6 in Appendix A1 show the location and height of these soundwalls.

Table 7-47. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S614B

Barrier I.D.: S614B					
Predicted Sound Level without Barrier					
Critical Design Receiver: R1.75					
Design Year Noise Level, dBA $L_{eq}(h)$: 72					
Design Year Noise Level Minus Existing Noise Level: 0					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	8	10	12	14	14
Number of Benefited Residences	1	1	1	1	1
New Highway or More than 50% of Residences Predate 1978 ^b	No	No	No	No	No
Reasonable Allowance Per Benefited Residence	\$37,000	\$39,000	\$41,000	\$41,000	\$41,000
Total Reasonable Allowance	\$37,000	\$39,000	\$41,000	\$41,000	\$41,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Areas without Feasible Noise Abatement

Receivers R1.4 through R1.8: Traffic noise impacts would occur at 11 single-family residences along the southbound side of I-405 between Bristol and Bear Streets despite the presence of an existing 13 feet 4 inch high soundwall. There are no project-related changes in this area that would affect traffic noise levels; therefore, this area was not analyzed as part of this traffic noise impact study Figure 1 in Appendix A3 shows these receivers.

Receivers R1.55 and R1.56: Traffic noise impacts would occur at eight frontage units of Gisler Park along the southbound side of I-405 between Fairview Road and Harbor Boulevard despite the presence of an in-kind replacement 14-foot high soundwall. The soundwall analysis summarized in Table G-13 demonstrates that increasing the height of the in-kind replacement soundwall would not provide 5 dB or more of noise reduction at this park. Figure 3 in Appendix A3 shows this receiver.

Receivers R1.71 and R1.72: Traffic noise impacts would occur at eight single-family residences along the northbound side of I-405 north of San Leandro Lane despite the presence of an intervening existing and in-kind replacement 14-foot high soundwalls. The soundwall analysis summarized in Table G-13 demonstrates that that replacing the existing soundwall with one at a greater height and increasing the height of the replacement soundwall would not provide 5 dB or more of noise reduction at these residences. Figure 2 in Appendix A3 shows these receivers.

Receivers R1.80 through R1.86: Receivers R1.80 through R1.86 represent 18 multi-family residential units along the southbound side of I-405 along Iowa Street north of Harbor Boulevard. Traffic noise impacts would occur at these receivers despite the presence of an intervening existing 12-foot 7-inch high soundwall as well as a 14-foot high in-kind replacement soundwall. The soundwall analysis summarized in Table G-13 demonstrates that replacing the

existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 4 and 5 in Appendix A3 show these receivers.

Receivers R1.88 through R1.90, R1.92, R1.93, and R1.95: Traffic noise impacts would occur at 25 single-family residences along the southbound side of I-405 between New Hampshire Drive and Nevada Avenue despite the presence of 14-, 16-, and 12-foot high in-kind replacement soundwall. The soundwall analysis summarized in Table G-13 demonstrates that replacing the existing soundwall with a higher soundwall and/or increasing the height of the in-kind replacement soundwall would not provide 5 dB or more noise reduction at these residences. Figure 5 in Appendix A3 shows these receivers.

7.2.3.2. SEGMENT 2 – EUCLID STREET TO MAGNOLIA STREET

Areas with Noise Abatement

Soundwalls S699 and S705: Soundwalls S699 and S705 would be in-kind replacements of the existing 16- and 12-foot high soundwalls due to the widening of I-405 in this area. These soundwalls would be located at the southbound right-of-way and edge of shoulder. Soundwall S699 will be on a retaining wall. Traffic noise impacts are not predicted under Alternative 3 with replacement of these existing soundwalls. Figures 7 and 8 in Appendix A3 show the location and height of these in-kind replacement Soundwalls S699 and S705.

Soundwalls S708, S710, and S718: These soundwalls which act as a system would be located along the northbound I-405 edge of shoulder and right-of-way line. The purpose of Soundwall S708 is to extend the coverage to the south of in-kind replacement Soundwall S710 to compensate for the encroachment of I-405 onto the existing overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure to three single-family residences to freeway traffic noise. Soundwall S718, which is a new soundwall, would extend in-kind replacement Soundwall S710 further to the north and would end where the retaining wall with safety barrier begins along the northbound Brookhurst Street off-ramp. Due to the elevation differences, the solid 3-foot high safety barrier along the off-ramp is considered in the noise impact analysis and it must be kept for noise reduction in addition to the safety related issues. Traffic noise impacts are predicted at 24 single family residences and Los Alamos Park. Together, Soundwalls S708, S710, and S718 would provide at least 5 dB of noise reduction for 21 single-family residences. A 5 dB noise reduction would not be achieved at three single-family residences represented by Receivers R2.14 and R2.17 as well as Los Alamos Park represented by Receiver R2.15. Figures 7 and 8 in Appendix A3 show the minimum heights and lengths of Soundwalls S708, S710, and S718 to provide feasible abatement. Table 7-48 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-48. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S708, S710, and S718

Barrier I.D.: S708, S710, & S718					
Predicted Sound Level without Barrier					
Critical Design Receiver: R2.24					
Design Year Noise Level, dBA $L_{eq}(h)$: 68					
Design Year Noise Level Minus Existing Noise Level: 1					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	1	2	4	6	7
Number of Benefited Residences	N/A	N/A	N/A	19	21
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	Yes	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	\$45,000	\$45,000
Total Reasonable Allowance	N/A	N/A	N/A	\$855,000	\$945,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S733: Soundwall S733 would be located at the shoulder of the southbound off-ramp to Brookhurst Street along the southbound side of I-405 and connects to the safety barrier on top of the retaining wall. Due to the elevation differences, the solid 3-foot high safety barrier along the off-ramp is considered in the noise impact analysis and it must be kept for noise reduction in addition to the safety related issues. Traffic noise impacts are predicted within the outdoor frequent use areas of a single-family residence in this area. Soundwall S733 would provide at least 5 dB of noise reduction for this residence. Figure 8 in Appendix A3 shows the minimum heights and length of Soundwall S733 to provide feasible abatement. Table 7-49. summarizes predicted soundwall performance and associated cost allowance information.

Soundwall S745: This soundwall would be located at the right-of-way line and inside the right-of-way along the southbound side of I-405 and would extend an existing soundwall to the south. Traffic noise impacts in this area are predicted within the outdoor frequent use areas of two single-family residences and two frontage units of an athletic field of Fountain Valley High School. Soundwall S745 would also extend the coverage of the adjoining existing soundwall to compensate for the encroachment of I-405 onto the existing overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure of nearby homes and apartment complex to freeway traffic noise. Soundwall S745 would provide at least 5 dB of noise reduction for the two single-family residences and one frontage unit of the athletic field. Figure 9 in Appendix A3 shows the minimum heights and length of Soundwall S745 to provide feasible abatement. Table 7-50 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-49. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S733

Barrier I.D.: S733					
Predicted Sound Level without Barrier					
Critical Design Receiver: R2.34					
Design Year Noise Level, dBA $L_{eq}(h)$: 67					
Design Year Noise Level Minus Existing Noise Level: 1					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	2	4	5	5	6
Number of Benefited Residences	N/A	N/A	1	1	1
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	\$43,000	\$43,000	\$45,000
Total Reasonable Allowance	N/A	N/A	\$43,000	\$43,000	\$45,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Table 7-50. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S745

Barrier I.D.: S745					
Predicted Sound Level without Barrier					
Critical Design Receiver: R2.41					
Design Year Noise Level, dBA $L_{eq}(h)$: 71					
Design Year Noise Level Minus Existing Noise Level: 4					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	4	6	7
Number of Benefited Residences	N/A	N/A	N/A	1	3
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	No	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	\$39,000	\$49,000
Total Reasonable Allowance	N/A	N/A	N/A	\$39,000	\$147,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S746: Soundwall S746 would be located along the right-of-way line on the northbound side of I-405. This soundwall would extend an existing soundwall to the south and would also extend the coverage of the adjoining existing soundwall to compensate for the encroachment of I-405 onto the existing Slater Avenue overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure of nearby homes to freeway traffic noise. Traffic noise impacts are predicted at one single-family residence and the preschool playground associated with Huntington Baptist Church represented

by Receivers R2.45 and R2.46, respectively. Furthermore, the playground is predicted to be exposed to traffic noise levels of 75 dBA; therefore, it is considered to be severely impacted. Soundwall S746 would provide at least 5 dB of noise reduction for the impacted residence as well as the playground of the school. Even if this soundwall is not reasonable based on cost, it must be built because of the severe impact. Figure 9 in Appendix A3 shows the minimum height and length of Soundwall S746 to provide feasible abatement. Table 7-51 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-51. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S746

Barrier I.D.: S746					
Predicted Sound Level without Barrier					
Critical Design Receiver: R2.46					
Design Year Noise Level, dBA $L_{eq}(h)$: 75					
Design Year Noise Level Minus Existing Noise Level: 7					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	6	6	7	7	8
Number of Benefited Residences	1	2	2	2	2
New Highway or More than 50% of Residences Predate 1978 ^b	Yes	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	\$51,000	\$51,000	\$51,000	\$51,000	\$51,000
Total Reasonable Allowance	\$51,000	\$102,000	\$102,000	\$102,000	\$102,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S765: This soundwall would be located along the southbound I-405 right-of-way line. The purpose of Soundwall S765 is to extend the coverage of an existing 16-foot high soundwall and an existing 14-foot high property wall to compensate for the encroachment of I-405 onto the existing Bushard Street overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure to four single-family residences to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of four single-family residences in this area but this soundwall would not provide 5 dB or more of traffic noise reduction. Figure 9 in Appendix A3 shows the location and height of Soundwall S765.

Soundwall S766: Soundwall S766 would be located along the northbound I-405 right-of-way line. The purpose of Soundwall S766 is to extend the coverage of an existing 14-foot 6-inch high soundwall to the north to compensate for the encroachment of I-405 onto the existing Bushard Street overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure to six single-family residences to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of six single-family residences in this area but this soundwall would not provide 5 dB or more of traffic noise reduction. Figure 9 in Appendix A3 shows the location and height of Soundwall S766.

Soundwalls S786, S788, and S792: These soundwalls which act as a system would be located along the northbound on-ramp from Warner Avenue and northbound off-ramp to Magnolia Street. Soundwall S786 would be a new wall and the purpose of Soundwall S788 is to extend the coverage to the south of Soundwall S792 to compensate for the exposure of freeway traffic noise to five single-family residences due to the opening provided by the structure of the northbound on-ramp from Warner Avenue over the northbound off-ramp to Magnolia Street. Soundwall S 792 is an in-kind replacement of existing soundwall. Furthermore, due to the configuration of these ramps, absorptive materials/panels will be required on the traffic side of Soundwall S792 and on the retaining wall associated with the Warner Avenue on-ramp to prevent the traffic noise from reflecting between the soundwall and retaining wall. Traffic noise impacts are predicted within the outdoor frequent use areas of 13 single-family residences in this area; however, Soundwalls S786, S788, and S792 would only provide at least 5 dB of noise reduction for three impacted single-family residences represented by Receiver R2.81. Figures 10 and 11 in Appendix A3 show the location and height of Soundwalls S786, S788, and S792. Table 7-52 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-52. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S786, S788, and S792

Barrier I.D.: S786, S788, & S792					
Predicted Sound Level without Barrier					
Critical Design Receiver: R2.81					
Design Year Noise Level, dBA $L_{eq}(h)$: 67					
Design Year Noise Level Minus Existing Noise Level: -2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	0	4	5
Number of Benefited Residences	N/A	N/A	N/A	N/A	3
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$43,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$129,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Areas without Feasible Noise Abatement

Receivers R2.14, R2.15, and R2.17: Traffic noise impacts would occur at three single family residences as well as Los Alamos Park along the northbound side of I-405 just north of Talbert Avenue. These receivers would be protected by Soundwalls S708, S710, and S718; however, the soundwall analysis summarized in Table G-14 demonstrates that increasing the heights of these soundwalls would not provide 5 dB or more of noise reduction at the three impacted residences and the park. Figures 7 and 8 in Appendix A3 show these receivers.

Receivers R2.35 and R2.37 through R2.39: Traffic noise impacts would occur at 11 single-family residences along the southbound side of I-405 between Sturgeon Avenue and Fremont

Street despite the presence of an existing 12-foot high property wall. The soundwall analysis summarized in Table G-14 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more noise reduction at these residences. Figures 8 and 9 in Appendix A3 show these receivers.

Receivers R2.47 through R2.49, R2.51 through R2.53, R2.55, and R2.56: Traffic noise impacts would occur at 23 first row single family residences along the northbound side of I-405 between Slater Avenue and Bushard Street. These receivers are protected by an existing 14-foot 6-inch high existing soundwall. The soundwall analysis is summarized in Table G-14 demonstrates that a higher replacement soundwall would not provide 5 dB or more of noise reduction at the 23 impacted residences. Figure 9 in Appendix A3 shows these receivers.

Receivers R2.58 and R2.59: Traffic noise impacts would occur at four single-family residences along the northbound side of I-405 just south of Bushard Street despite the addition of the new Soundwall S766. The soundwall analysis summarized in Table G-14 demonstrates that the addition of Soundwall S766 would not provide 5 dB or more of noise reduction at these residences. Figure 9 in Appendix A3 shows these receivers.

Receivers R2.63 through R2.66 and R2.69: Traffic noise impacts would occur at the frequent outdoor use areas of 10 first row single-family residences along the southbound side of I-405 between Bushard Street and Warner Avenue despite the presence of an existing 14-foot and 16-foot 8-inch high property walls as well as the addition of the new Soundwall S765. Receivers R2.65, R2.66, and R2.69 are located in the new Tremont housing development. The soundwall analysis summarized in Table G-14 demonstrates that replacing the existing property wall with one at a greater height where possible and the addition of Soundwall S765 would not provide 5 dB or more of noise reduction at these residences. Figures 9 through 10 in Appendix A3 show these receivers.

Receivers R2.82, R2.84, and R2.85: Traffic noise impacts would occur at 10 single-family residences along the northbound side of I-405 between Warner Avenue and Magnolia Street despite the addition of Soundwalls S786 and S788 as well as in-kind replacement Soundwall S792. The soundwall analysis summarized in Table G-14 demonstrates that increasing the heights of Soundwalls S786, S788, and S792 would not provide 5 dB or more of noise reduction at these residences. Figure 10 Appendix A3 shows these receivers.

7.2.3.3. SEGMENT 3 – MAGNOLIA STREET TO BOLSA AVENUE / GOLDENWEST STREET

Areas with Noise Abatement

Soundwalls S807, S811, and S827: Soundwall S807 would be located at the edge of the shoulder along the southbound I-405 off-ramp at Magnolia Street. It would provide a southward extension of the coverage currently provided by an existing soundwall. The southernmost portion of the existing 10 feet 6 inch soundwall would be replaced by Soundwall S811, which is an in-kind replacement and would follow the right-of-way line. A portion of Soundwall S811 would be higher than the portion of existing soundwall it would replace. Traffic noise impacts are predicted at Pleasant View Park and the outdoor frequent use areas of two residences within this area. Soundwalls S807 and S811 together would provide at least 5 dB of noise reduction at the park and at both residences. Soundwall S827 would connect with Soundwall S811 and would represent an in-kind replacement for the remainder of the existing soundwall in this area.

Figure 11 in Appendix A3 shows the minimum heights and lengths of Soundwalls S807 and S811 to provide feasible abatement at the park and the two residences. Figures 11 and 12 in Appendix A3 show the height and location of Soundwall S827 required to serve as an in-kind replacement. Table 7-53 summarizes predicted soundwall performance and associated cost allowance information for Soundwalls S807 and S811.

Table 7-53. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S807 and S811

Barrier I.D.: S807 & S811					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.23B					
Design Year Noise Level, dBA $L_{eq}(h)$: 69					
Design Year Noise Level Minus Existing Noise Level: 6					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	4	4	6	7	7
Number of Benefited Residences	NA	NA	7	7	9
New Highway or More than 50% of Residences Predate 1978 ^b	NA	NA	No	No	No
Reasonable Allowance Per Benefited Residence	NA	NA	\$37,000	\$37,000	\$37,000
Total Reasonable Allowance	NA	NA	\$259,000	\$259,000	\$333,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S834: Soundwall S834 would be located at the edge of shoulder along the northbound side of the I-405 mainline. Traffic noise impacts are predicted at the outdoor frequent use areas of 11 single family residences. Soundwall S834 would provide at least 5 dB of noise reduction at six of these residences. Figures 11 and 12 in Appendix A3 show the minimum height and length of Soundwall S834 to provide feasible abatement along with the portion of the associated existing soundwall that would remain. Table 7-54. summarizes predicted soundwall performance and associated cost allowance information.

Soundwall S841: Soundwall S841 would be located at the edge of shoulder along the southbound side of I-405. The purpose of Soundwall S841 is to extend the coverage of the adjoining existing 12 feet 6 inch soundwall to the south and carport / property wall to the north to compensate for the removal of some of the existing embankment at the Newland Street overcrossing. A gap would be created due to the construction of a longer bridge, requiring the embankment to be moved outward. That change in the embankment configuration would increase the exposure of nearby receivers to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of four residences and at a basketball court located near the gap. Soundwall S841 would provide at least 5 dB of noise reduction at each of these receivers as well as two non-impacted residences. At two of the impacted residences – represented by Receivers R3.48 and R3.50 -- the predicted peak hour noise level is at or above 75 dBA without a soundwall in place; thus, these residences would be considered severely

impacted. Where severe impacts are identified, unusual and extraordinary abatement must be considered. If Soundwall S841 is determined to be unreasonable based on cost, providing the soundwall will still be required for these residences. If building a soundwall is not reasonable due to other factors besides cost, then building acoustical treatment must be provided for these two houses. Figure 12 in Appendix A3 shows the minimum heights and length of Soundwall S841 to provide feasible abatement along with the associated soundwall and carport structure / property wall that would flank it. Table 7-55 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-54. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S834

Barrier I.D.: S834					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.16					
Design Year Noise Level, dBA $L_{eq}(h)$: 72					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	NA	NA	3	4	5
Number of Benefited Residences	NA	NA	NA	NA	11
New Highway or More than 50% of Residences Predate 1978 ^b	NA	NA	NA	NA	Yes
Reasonable Allowance Per Benefited Residence	NA	NA	NA	NA	\$45,000
Total Reasonable Allowance	NA	NA	NA	NA	\$495,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S857: Soundwall S857 would be located at the edge of shoulder along the southbound I-405 on-ramp at Edinger Avenue. Without abatement, traffic noise impacts are predicted at outdoor frequent use areas associated with seven ground-floor multifamily residential units. Soundwall S857 would provide at least 5 dB of noise reduction at each of these residential units. Figures 12 and 13 in Appendix A3 show the minimum heights and length of Soundwall S857 to provide feasible abatement. Table 7-56 summarizes predicted soundwall performance and associated cost allowance information.

Soundwall S868: This soundwall would be located along the right-of-way line on the northbound side of I-405. This soundwall would extend beyond the northernmost portion of an existing 14- to 18-foot high property wall. The outdoor frequent use area of one single-family property represented by Receiver R3.63 would experience traffic noise impacts in the absence of abatement. Soundwall S868 would provide feasible noise abatement at this residence. Figure 13 in Appendix A3 shows the minimum height and length of Soundwall S868 to provide feasible abatement along with the portion of the adjoining property wall. Table 7-57 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-55. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S841

Barrier I.D.: S841					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.48					
Design Year Noise Level, dBA $L_{eq}(h)$: 76					
Design Year Noise Level Minus Existing Noise Level: 9					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	7	8	10	10	11
Number of Benefited Residences	2	3	4	7	7
New Highway or More than 50% of Residences Predate 1978 ^b	Yes	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	\$53,000	\$53,000	\$55,000	\$55,000	\$55,000
Total Reasonable Allowance	\$106,000	\$159,000	\$220,000	\$385,000	\$385,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Table 7-56. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S857

Barrier I.D.: S857					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.56					
Design Year Noise Level, dBA $L_{eq}(h)$: 71					
Design Year Noise Level Minus Existing Noise Level: 4					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	3	4	5	6	6
Number of Benefited Residences	NA	NA	7	7	7
New Highway or More than 50% of Residences Predate 1978 ^b	NA	NA	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	NA	NA	\$47,000	\$49,000	\$49,000
Total Reasonable Allowance	NA	NA	\$329,000	\$343,000	\$343,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Table 7-57. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S868

Barrier I.D.: S868					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.63					
Design Year Noise Level, dBA $L_{eq}(h)$: 67					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	2	3	4	4	7
Number of Benefited Residences	NA	NA	NA	NA	1
New Highway or More than 50% of Residences Predate 1978 ^b	NA	NA	NA	NA	No
Reasonable Allowance Per Benefited Residence	NA	NA	NA	NA	\$35,000
Total Reasonable Allowance	NA	NA	NA	NA	\$35,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S896: Soundwall S896 would be located along the right-of-way line on the northbound side of I-405. This soundwall would extend underneath the McFadden Avenue overcrossing. The purpose of Soundwall S896 is to extend the coverage of the adjoining existing soundwall to compensate for the encroachment of I-405 onto the overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure of nearby mobile homes to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of five mobile homes. Soundwall S896 would not provide 5 or more dB of noise reduction at these residences but it would prevent additional noise exposure from reconfiguration of the bridge embankment. Figure 14 in Appendix A3 shows the height and location of Soundwall S896 along with the existing soundwall that it would connect with.

Soundwalls S902, S910, and S916: Soundwalls S902, S910, and S916 would be located at the edge of shoulder along the northbound side of I-405. Soundwalls S902 and S910 would represent an in-kind replacement of an existing soundwall. Soundwall S902 would be at the same height as the original soundwall but Soundwall S910 would be higher. Soundwall S916 would be a new soundwall. Traffic noise impacts are predicted at the outdoor frequent use areas of five single family residences behind Soundwall S902. These residences are represented by Receivers R3.81 and R3.81A. Greater heights were considered for Soundwall S902, but these greater heights would not provide 5 or more dB of additional noise reduction at these residences. Soundwalls S910 and S916 together are intended to provide abatement at seven single family residences represented by Receivers R3.85 to R3.86A. Together, they would provide at least 5 dB of noise reduction for each of these seven residences. Figures 14 and 15 in Appendix A3 show the heights and locations of replacement Soundwall S902 as well as the minimum heights and lengths for Soundwalls S910 and S916 to provide feasible abatement. Table 7-58 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-58. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S910 and S916

Barrier I.D.: S910 & S916					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.86A					
Design Year Noise Level, dBA $L_{eq}(h)$: 67					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	3	5	5	7	7
Number of Benefited Residences	NA	2	7	7	7
New Highway or More than 50% of Residences Predate 1978 ^b	NA	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	NA	\$43,000	\$43,000	\$45,000	\$45,000
Total Reasonable Allowance	NA	\$86,000	\$301,000	\$315,000	\$315,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwalls S907 and S141: Soundwall S907 would be located at the edge of shoulder along the southbound side of I-405. Soundwall S141 would be located on top of a retaining wall that would be built under Alternative 3. Soundwall S907 would be a new barrier. Soundwall S141 is an in-kind replacement which would replace two existing soundwalls -- one 8-foot high soundwall at the edge of shoulder and one 12 feet 6 inch high soundwall along the right-of-way line. Relative to its base, a portion of Soundwall S141 would not be as tall as the existing 12 feet 6 inch high soundwall. However, the base of Soundwall S141 would be at a higher elevation than the existing 12 feet 6 inch high soundwall; therefore, the elevation of the top of Soundwall S141 would not be below the top-of-wall elevation of the existing soundwall. Traffic noise impacts are predicted within the outdoor frequent use areas of 20 single family residences in this area. Raising in-kind replacement Soundwall S141 above the heights of the existing replaced soundwalls would not provide 5 or more dB of noise reduction at these residences for its entire length except for a small portion on the south end. Traffic noise impacts are also predicted at College Park. Together with replacement Soundwall S141, new Soundwall S907 would provide at least 5 dB of noise reduction for the six frontage units associated with this park. Figures 14 and 15 in Appendix A3 show the minimum heights and lengths of Soundwall S907 to provide feasible abatement, as well as the height and location of in-kind replacement Soundwall S141. Table 7-59 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-59. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S907

Barrier I.D.: S907					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.88					
Design Year Noise Level, dBA $L_{eq}(h)$: 68					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	5	5	6	6	6
Number of Benefited Residences	1	4	6	6	6
New Highway or More than 50% of Residences Predate 1978 ^b	Yes	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	\$43,000	\$43,000	\$45,000	\$45,000	\$45,000
Total Reasonable Allowance	\$43,000	\$172,000	\$270,000	\$270,000	\$270,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S935: This soundwall would follow the right-of-way line along the southbound I-405 on-ramp from eastbound Bolsa Avenue. It would connect an existing soundwall to an existing 6-foot high property wall south of Bolsa Avenue. Without abatement, traffic noise impacts are predicted within the outdoor frequent use area of one residence in this area. With minimum feasible soundwall heights, one house would receive 5 or more dB of noise reduction. Figure 15 in Appendix A3 shows the minimum height and length of Soundwall S935 to provide feasible abatement along with the adjacent replacement soundwall and property wall. Table 7-60 summarizes predicted soundwall performance and associated cost allowance information.

Areas without Feasible Noise Abatement

Receivers R3.4 through R3.10 and R3.12: Under Alternative 3, traffic noise impacts would occur at outdoor frequent use areas associated with two ground-floor apartment units and at 18 first row single family residences along the northbound side of I-405 between Magnolia and Lunar Streets. These impacts would occur in spite of the presence of an existing 10 feet 6 inch soundwall. Because the existing soundwall provides substantial insertion loss, increases in height would provide only limited additional noise reduction. The soundwall analysis summarized in Table G-15 demonstrates that 5 dB or more of noise reduction would not be achieved at these residences. Figures 11 and 12 in Appendix A3 show these receivers.

Receivers R3.14, R3.17, and R3.18: Traffic noise impacts would occur at 11 single family residences along the northbound side of I-405 between Lunar and Newland Streets. A soundwall at the shoulder would provide 5 dB or more of noise reduction at as many as six of these residences. However, the soundwall analysis summarized in Table G-15 demonstrates that the remaining five residences would not be provided with 5 dB or more of noise reduction. Figure 12 in Appendix A3 shows these receivers.

Table 7-60. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S935

Barrier I.D.: S935					
Predicted Sound Level without Barrier					
Critical Design Receiver: R3.99					
Design Year Noise Level, dBA $L_{eq}(h)$: 66					
Design Year Noise Level Minus Existing Noise Level: 3					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	2	3	4	4	5
Number of Benefited Residences	NA	NA	NA	NA	4
New Highway or More than 50% of Residences Predate 1978 ^b	NA	NA	NA	NA	Yes
Reasonable Allowance Per Benefited Residence	NA	NA	NA	NA	\$45,000
Total Reasonable Allowance	NA	NA	NA	NA	\$180,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Receivers R3.26 through R3.28: Traffic noise impacts would occur at eight single-family residences along the southbound side of I-405 between De Ville Circle and Landau Lane despite the presence of an existing 10 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-15 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 11 in Appendix A3 shows these receivers.

Receiver R3.42: Traffic noise impacts would occur at two single-family residences along the southbound side of I-405 between Heil Avenue and Newland Street despite the presence of an existing 12 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-15 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 12 in Appendix A3 shows this receiver.

Receivers R3.53, R3.54, R3.55, and R3.55A: Traffic noise impacts would occur at 18 multi-family residential units of the Huntington Creek Apartments along the southbound side of I-405 between Newland Street and Edinger Avenue despite the presence of an intervening existing 15 feet 6 inch high carport structure / property wall. The edge of shoulder in this area is higher than ground level at the carport structure / property wall. Accordingly, a soundwall was considered at the edge of shoulder. However, the soundwall analysis summarized in Table G-15 demonstrates that supplementing the carport structure / property wall with a new soundwall would not provide 5 dB or more of noise reduction at these residences. Figure 12 in Appendix A3 shows these receivers.

Receivers R3.69 through R3.75: Receivers R3.69 through R3.75 represent 41 units of the Driftwood Mobile Home Park along the northbound side of I-405 between Beach Boulevard and McFadden Avenue. Traffic noise impacts would occur at these receivers despite the presence of an intervening existing 10 feet 6 inches to 14-foot high soundwall. The soundwall analysis

summarized in Table G-15 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 13 and 14 in Appendix A3 show these receivers.

Receivers R3.76 and R3.77: Receivers R3.76 and R3.77 represent the northernmost five units of the Driftwood Mobile Home Park that would experience traffic noise impacts. The impacts would occur despite the presence of an intervening existing 14-foot high soundwall. In this area, the embankment at the McFadden Avenue overcrossing would be moved outward under Alternative 3 to accommodate the widening of I-405. Soundwall S896 would compensate for the additional noise exposure that the mobile homes would receive due to the reconfiguration of this embankment. However, further increases in the height of Soundwall S896 and the existing soundwall to the south would not provide 5 dB or more of noise reduction at these residences, as demonstrated in Table G-15. Figure 14 in Appendix A3 shows these receivers.

Receivers R3.81 and R3.81A: Traffic noise impacts would occur at five single family residences along the northbound side of I-405 north of McFadden Avenue despite the presence of an in-kind replacement 8-foot high soundwall. The soundwall analysis summarized in Table G-15 demonstrates that the replacement soundwall would not provide 5 dB or more of noise reduction at the five residences. Figure 14 in Appendix A3 shows these receivers.

Receivers R3.95, R3.96, and R3.98: Traffic noise impacts would occur at 20 single family residences along the southbound side of I-405 north of the Union Pacific Railroad underpass. These impacts would occur despite the presence of an in-kind replacement 8-foot high soundwall and an existing 12 feet 6 inch soundwall. The soundwall analysis summarized in Table G-15 demonstrates that the in-kind replacement soundwall or a higher soundwall replacing the existing soundwall would not provide 5 dB or more of noise reduction at these 20 residences. Figure 15 in Appendix A3 shows these receivers.

7.2.3.4. SEGMENT 4 – BOLSA AVENUE / GOLDENWEST STREET TO SR-22 / VALLEY VIEW STREET, SR-22 EAST TO SPRINGDALE STREET

Areas with Noise Abatement

Soundwalls S182, S972, and S978: These soundwalls which act as a system would be located along the northbound I-405 edge of shoulder. Soundwalls S182 and S972 would be in-kind replacement soundwalls; however, Soundwall S972 would be a higher wall than the wall it is replacing. Soundwall S978 would extend Soundwall S972 further to the north. Traffic noise impacts are predicted at 11 single family residences, the track and field area of Westminster High School, and Buckingham Park. Together, Soundwalls S182, S992, and S978 would provide at least 5 dB of noise reduction for three frontage units of the high school and six frontage units of the neighborhood park as well as two non-impacted single-family residences. Figures 16 and 17 in Appendix A3 show the minimum heights and lengths of Soundwalls S972 and S978 to provide feasible abatement along with the adjoining in-kind soundwall replacement, Soundwall S182. Table 7-61 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-61. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S972 and S978

Barrier I.D.: S972 & S978					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.25A					
Design Year Noise Level, dBA $L_{eq}(h)$: 70					
Design Year Noise Level Minus Existing Noise Level: 1					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	5	5	7	8	8
Number of Benefited Residences	2	4	6	9	11
New Highway or More than 50% of Residences Predate 1978 ^b	No	No	No	No	No
Reasonable Allowance Per Benefited Residence	\$35,000	\$35,000	\$37,000	\$37,000	\$37,000
Total Reasonable Allowance	\$70,000	\$140,000	\$222,000	\$333,000	\$407,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S995: Soundwall S995 would be located at the right-of-way line along the southbound side of I-405. Soundwall S995 would replace an existing soundwall at the same location with a new height. Traffic noise impacts are predicted within the outdoor frequent use areas of five single-family residences in this area. Soundwall S995 would provide at least 5 dB of noise reduction for two of these residences. Figure 17 in Appendix A3 shows the minimum heights and length of Soundwall S995 to provide feasible abatement. Table 7-62 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-62. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S995

Barrier I.D.: S995					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.1					
Design Year Noise Level, dBA $L_{eq}(h)$: 72					
Design Year Noise Level Minus Existing Noise Level: 3					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	3	4	6
Number of Benefited Residences	N/A	N/A	N/A	N/A	2
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	No
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$39,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$78,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S998: This soundwall would be located at the right-of-way line along the northbound side of I-405 and would extend an existing soundwall to the north. Traffic noise impacts are predicted within the outdoor frequent use areas of two single-family residences and a multi-family unit in this area. Soundwall S998 would provide at least 5 dB of noise reduction for the two single-family residences. Figure 17 in Appendix A3 shows the minimum heights and length of Soundwall S995 to provide feasible abatement. Table 7-63 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-63. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S998

Barrier I.D.: S998					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.32					
Design Year Noise Level, dBA $L_{eq}(h)$: 73					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	2	3	4	5	7
Number of Benefited Residences	N/A	N/A	N/A	2	2
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	Yes	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	\$45,000	\$47,000
Total Reasonable Allowance	N/A	N/A	N/A	\$90,000	\$94,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwalls S1005 and S1009: These soundwalls would follow the right-of-way along the southbound I-405 on-ramp from Westminster Boulevard. Soundwall S1005 would replace and heighten an existing soundwall at its current location and Soundwall S1009 would extend S1005 to the north. Traffic noise impacts are predicted at six single-family residences represented by Receivers R4.7 through R4.9 as well as at Cascade Park represented by Receivers R4.10 through R4.12. Short-term noise measurement ST34 was conducted in the park; however, the measurement levels were suspicious and have not been included in the analysis. With minimum feasible soundwall heights, the six frontage units of the park would be benefited. In addition, a 5 dB noise reduction would be achieved at five non-impacted single-family residences represented by Receiver R4.13. Figures 17 and 18 in Appendix A3 show the minimum height and length of Soundwall S1009 to provide feasible abatement. Table 7-64 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-64. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S1005 and S1009

Barrier I.D.: S1005 & S1009					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.11					
Design Year Noise Level, dBA $L_{eq}(h)$: 75					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	8	9	10	11	12
Number of Benefited Residences	2	11	11	11	11
New Highway or More than 50% of Residences Predate 1978 ^b	Yes	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	\$49,000	\$51,000	\$51,000	\$51,000	\$53,000
Total Reasonable Allowance	\$98,000	\$561,000	\$561,000	\$561,000	\$583,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwall S1006: Soundwall S1006 would be located along the right-of-way line on the northbound side of I-405. The outdoor pool area of the Motel 6 represented by Receiver R4.33 as well as the interior rooms facing the freeway represented by Receiver R4.33A would experience traffic noise impacts. Furthermore, the pool area is predicted to be exposed to traffic noise levels of above 75 dBA; therefore, it is considered to be severely impacted. Where severe impacts are identified, unusual and extraordinary abatement must be considered. If Soundwall S1006 is determined to be unreasonable based on cost, providing the soundwall will still be required for this hotel. Soundwall S1006 would provide at least 5 dB of noise reduction for the pool and interior of the first floor motel rooms facing the freeway and would reduce to noise level of the pool area to be below the severe impact criteria. Figure 17 in Appendix A3 shows the minimum height and length of Soundwall S1006 to provide feasible. Table 7-65 summarizes predicted soundwall performance and associated cost allowance information.

Soundwalls S1016, S1020, S1022, and S1024: Soundwalls S1016 and S1020 would be located at the edge of shoulder along the northbound on-ramp from Westminster Boulevard and Soundwalls S1022 and S1024 would be located within the right-of-way. Soundwall S1020 would be an in-kind replacement soundwall with a new height at a new location and Soundwall S1022 would replace an existing soundwall with a taller wall at the existing location. The purpose of Soundwall S1024 is to extend the coverage of the replacement Soundwall S1022 to compensate for the encroachment of I-405 onto the existing overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure of a portion of Indian Village Park to freeway traffic noise. Traffic noise impacts are predicted to occur at the outdoor use areas of two different preschools associated with the Westminster Lutheran Church and Temple Beth David. Traffic noise impacts are also predicted at Indian Village Park in this area. Soundwalls S1016, S1020, S1022, and S1024 would combine to provide at least 5 dB of noise reduction for each of the schools and six frontage units of the park.

Figure 18 in Appendix A3 shows the minimum heights and lengths of Soundwalls S1016, S1020, and S1024 to provide feasible abatement. Table 7-66 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-65. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S1006

Barrier I.D.: S1006					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.33					
Design Year Noise Level, dBA _{L_{eq}} (h): 78					
Design Year Noise Level Minus Existing Noise Level: 5					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	6	8	9	10	12
Number of Benefited Residences	7	7	7	7	7
New Highway or More than 50% of Residences Predate 1978 ^b	Yes	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	\$51,000	\$51,000	\$53,000	\$53,000	\$55,000
Total Reasonable Allowance	\$357,000	\$357,000	\$371,000	\$371,000	\$385,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Table 7-66. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwalls S1016, S1020, S1022, and S1024

Barrier I.D.: S1016, S1020, S1022, and S1024					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.65					
Design Year Noise Level, dBA _{L_{eq}} (h): 74					
Design Year Noise Level Minus Existing Noise Level: 5					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	0	5	6
Number of Benefited Residences	N/A	N/A	N/A	5	8
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	Yes	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	\$47,000	\$49,000
Total Reasonable Allowance	N/A	N/A	N/A	\$235,000	\$392,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwalls S1026 and S1028: These soundwalls would be located at the right-of-way line along the northbound side of I-405. Soundwall S1026 would be a southern extension of Soundwall S1028 which would replace and heighten a portion of the south end of an existing soundwall at its current location. Soundwall S1026 would also extend the coverage of the adjoining existing

soundwall to compensate for the encroachment of I-405 onto the existing overcrossing embankment that would occur under Alternative 3. The reconfigured embankment would increase the exposure of nearby homes to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of four single family residences in this area; however, feasible noise reduction could only be obtained at one of the residences represented by Receiver R4.66. Together, Soundwalls S1026 and S1028 would provide at least 5 dB of noise reduction for this residence. Figure 18 in Appendix A3 shows the minimum heights and lengths of Soundwalls S1026 and S1028 to provide feasible abatement. Table 7-67 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-67. Summary of Reasonableness Determination Data – Alternative 3 – Soundwalls S1026 and S1028

Barrier I.D.: S1026 and S1028					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.66					
Design Year Noise Level, dBA $L_{eq}(h)$: 73					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	0	0	0	4	6
Number of Benefited Residences	N/A	N/A	N/A	N/A	1
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$47,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$47,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Soundwalls S1083: Soundwall S1083 would be located at the right-of-way line along the southbound side of I-405. Soundwall S1083 would extend an existing soundwall to the north. Soundwall S1083 would replace an existing soundwall that was located within the right-of way; however, due to the widening of I-405 and the topography of the area, an in-kind replacement soundwall within the right-of-way was not analyzed because the most effective location of a soundwall for this area would be at the right-of way line. Traffic noise impacts are predicted within the outdoor frequent use areas of nine single-family residences in this area. Soundwall S1083 would provide at least 5 dB of noise reduction for five of the nine residences. Figure 20 in Appendix A3 shows the minimum heights and length of Soundwall S1083 to provide feasible abatement. Table 7-68 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-68. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S1083

Barrier I.D.: S1083					
Predicted Sound Level without Barrier					
Critical Design Receiver: R4.62					
Design Year Noise Level, dBA $L_{eq}(h)$: 70					
Design Year Noise Level Minus Existing Noise Level: 8					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	3	5	6	7	8
Number of Benefited Residences	N/A	2	2	5	5
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	Yes	Yes	Yes	Yes
Reasonable Allowance Per Benefited Residence	N/A	\$49,000	\$51,000	\$51,000	\$51,000
Total Reasonable Allowance	N/A	\$98,000	\$102,000	\$255,000	\$255,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Areas without Feasible Noise Abatement

Receivers R4.2 through R4.6: Traffic noise impacts would occur at eight single-family residences as well as Willow Lane Town and Country School along the southbound side of I-405 along Willow Lane and Mahogany Avenue despite the presence of an existing 10 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-16 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 17 in Appendix A3 shows these receivers.

Receivers R4.14A through R4.17: Traffic noise impacts would occur at the frequent outdoor use areas of 11 first row and two second row single family residences along the northbound side of I-405 along Sowell Avenue north of Goldenwest Street. These receivers would be protected by Soundwall S182 located at the edge of the shoulder which would be an in-kind replacement of the existing soundwall located at the current edge of shoulder. However, Soundwall S182 would not provide 5 dB or more of noise reduction when raised above the in-kind height of 10-feet. The soundwall analysis is summarized in Table G-16 demonstrates that Soundwall S182 would not provide 5 dB or more of noise reduction at the 11 impacted residences. Figure 16 in Appendix A3 show these receivers.

Receivers R4.27 through R4.29, and R4.31A: Traffic noise impacts would occur at the patio areas of six multi-family residences along the northbound side of I-405 between Edwards Street and Westminster Boulevard despite the presence of an existing 14 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-16 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 17 in Appendix A3 shows these receivers.

Receivers R4.35 through R4.58: Traffic noise impacts would occur at the frequent outdoor use areas of 59 first row and eight second row single-family residences along the southbound side of

I-405 between Springdale Street and Valley View Street despite the presence of an existing 12 feet 6 inch high soundwall. The soundwall analysis summarized in Table C-16 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 18 through 20 in Appendix A3 show these receivers.

Receivers R4.67 through R4.83B: Traffic noise impacts would occur at 49 single-family residential units and 30 mobile homes along the northbound side of I-405 between Springdale Street and Valley View Street despite the presence of an intervening existing 12 feet 6 inch high soundwall. The soundwall analysis summarized in Table G-16 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 18 through 20 in Appendix A3 show these receivers.

7.2.3.5. SEGMENT 5 – VALLEY VIEW STREET TO SEAL BEACH DRIVE

Areas with Noise Abatement

Soundwall S1116: Soundwall S1116 would replace a portion of an existing soundwall along the northbound side of I-405. It would be located at the edge of shoulder. This in-kind replacement would be necessitated by the encroachment of the project onto this portion of the existing soundwall. At two of the residences behind this soundwall, traffic noise impacts are predicted under Alternative 3 even with in-kind replacement of this segment of the existing 18-foot high soundwall. Figure 21 in Appendix A3 shows the location and height of in-kind replacement Soundwall S1116 along with the portions of the associated existing soundwall that would remain.

Soundwall S1132: Soundwall S1132 would replace a portion of an existing soundwall along the northbound side of I-405. It would be located at the edge of shoulder. This in-kind replacement would be necessitated by the encroachment of the project onto this portion of the existing soundwall. At 10 of the residences behind this soundwall, traffic noise impacts are predicted under Alternative 3 even with in-kind replacement of this segment of the existing 18-foot high soundwall. Figures 21 and 22 in Appendix A3 show the location and height of in-kind replacement Soundwall S1132 along with the portions of the associated existing soundwall that would remain.

Soundwall S1162: Soundwall S1162 would be located at the edge of shoulder along the northbound side of I-405. It would provide abatement for the City of Seal Beach Tennis Court Center, an area that already experiences some noise reduction from a combination of an existing property wall and berm. Figures 22 and 23 in Appendix A3 show the minimum heights and length of Soundwall S1162 to achieve at least 5 dB noise reduction at this tennis facility. Table 7-69 summarizes predicted soundwall performance and associated cost allowance information.

Table 7-69. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S1162

Barrier I.D.: S1162					
Predicted Sound Level without Barrier					
Critical Design Receiver: R5.39					
Design Year Noise Level, dBA $L_{eq}(h)$: 67					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier ^c
Barrier Noise Reduction, dB	1	3	6	6	3
Number of Benefited Residences	N/A	N/A	2	2	N/A
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	Yes	Yes	N/A
Reasonable Allowance Per Benefited Residence	N/A	N/A	\$45,000	\$45,000	N/A
Total Reasonable Allowance	N/A	N/A	\$90,000	\$90,000	N/A

Note: NA-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a An NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

^c These results are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

Areas without Feasible Noise Abatement

Receivers R5.15, R5.17, R5.23, R5.35, R5.37, and R5.38: These receivers are behind portions of an existing 18-foot high soundwall between Violet and Aster Streets along northbound I-405 that would not need to be replaced under Alternative 3. They would experience traffic noise impacts despite the presence of the soundwall. These receivers represent 16 single family residences as well as Shapell and Blue Bell Parks. Figures 21 and 22 in Appendix A3 show these receivers.

Receiver R5.19: Receiver R5.19 would be behind a portion of an existing 18-foot high soundwall between Violet and Aster Streets that would need to be replaced in kind by Soundwall S1116 because it would be demolished under Alternative 3. This receiver represents two single family residences that would experience traffic noise impacts despite the presence of the reconfigured soundwall. Figure 21 in Appendix A3 shows this receiver.

Receivers R5.28, R5.30, R5.32, and R5.33: Along the northbound side of I-405 between Jasmin and Dahlia Circles, 10 single family residences would be exposed to traffic noise impacts under Alternative 3. These impacts would occur in spite of the presence of an 18-foot high replacement Soundwall S1132. Figure 22 in Appendix A3 shows these receivers.

7.2.3.6. SEGMENT 6 –SEAL BEACH BOULEVARD TO I-605, I-605 NORTH TO SOUTH OF KATELLA AVENUE

Areas with Noise Abatement

Soundwall S431: Soundwall S431 would be an in-kind replacement of the existing 10- to 14-foot high soundwall at the right-of-way line due to the necessity of constructing a retaining wall at the edge of shoulder in this area. At 20 of the residences behind this soundwall, traffic noise impacts

are predicted under Alternative 3 even with the in-kind replacement of the existing soundwall and increasing the height would not provide feasible noise reduction. Figures 24 and 25 in Appendix A3 show the location and height of Soundwall S431.

Soundwall S434: Soundwall S434 would replace a portion of an existing soundwall along the shoulder of northbound side of I-405. Soundwall S434 has been proposed for the SR-22 West County Connectors Project and currently does not exist; however, due to the widening of I-405, the proposed soundwall under the SR-22 project will need to be moved to follow the I-405 project's proposed on-ramp from Old Ranch Parkway. At nine of the residences behind this soundwall, traffic noise impacts are predicted under Alternative 3 even with the in-kind replacement of this segment of the existing soundwall and increasing the height would not provide feasible noise reduction. Figure 24 in Appendix A3 shows the location and height of Soundwall S434 along with the portions of the associated existing soundwall that would remain.

Soundwall S445: Soundwall S445 would replace a portion of an existing soundwall along the southbound side of the eastbound SR-22 to southbound I-405 connector edge of shoulder. Soundwall S445 has been proposed for the SR-22 West County Connectors Project and currently does not exist; however, due to the widening of I-405, the proposed soundwall under the SR-22 project will need to be moved to follow the I-405 project's proposed alignment. There would be no traffic noise impacts behind this soundwall. Figure 25 in Appendix A3 shows the location and height of Soundwall S445 along with the portions of the associated existing soundwall that would remain.

Soundwall S1226: This soundwall would be located at the right-of-way line along the northbound side of I-405 and would extend to connect to an existing soundwall to the east. The purpose of Soundwall S1226 is to extend the coverage of the existing soundwall to compensate for the encroachment of I-405 onto the existing northbound I-405 to westbound SR-22 embankment that would occur under Alternative 3. The existing embankment currently protects this area; however, the reconfigured embankment/retaining wall would expose this area to freeway traffic noise. Traffic noise impacts are predicted within the outdoor frequent use areas of nine single-family residences in this area. Soundwall S1226 would provide at least 5 dB of noise reduction for three single-family residences. Figure 25 in Appendix A3 shows the minimum heights and location of Soundwall S1226 to provide feasible abatement. Table 7-70 summarizes predicted soundwall performance and associated cost allowance information.

Soundwall S464: Soundwall S464 would be an in-kind replacement soundwall of a proposed soundwall under the SR-22 West County Connectors Project that would need to be replaced due to the additional widening of I-405 under the I-405 project. Traffic noise impacts are predicted within the outdoor frequent use areas of two single-family residences in this area but this soundwall would not provide 5 dB or more of traffic noise reduction. Figure 26 in Appendix A3 shows the location and height of Soundwall S464.

Table 7-70. Summary of Reasonableness Determination Data – Alternative 3 -- Soundwall S1226

Barrier I.D.: S1226					
Predicted Sound Level without Barrier					
Critical Design Receiver: R6.36A					
Design Year Noise Level, dBA $L_{eq}(h)$: 71					
Design Year Noise Level Minus Existing Noise Level: 5					
Design Year with Barrier	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Barrier Noise Reduction, dB	1	3	4	4	5
Number of Benefited Residences	N/A	N/A	N/A	N/A	3
New Highway or More than 50% of Residences Predate 1978 ^b	N/A	N/A	N/A	N/A	Yes
Reasonable Allowance Per Benefited Residence	N/A	N/A	N/A	N/A	\$47,000
Total Reasonable Allowance	N/A	N/A	N/A	N/A	\$141,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

^a A NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

^b This adjustment increases the abatement allowance by \$10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

Areas without Feasible Noise Abatement

Receivers R6.2, R6.3, R6.6, and R6.8 through R6.11: Traffic noise impacts would occur at 20 multi-family residential units of Leisure World retirement community along the southbound side of I-405 between Beverly Manor and Del Monte Drives despite the presence of 10- to 14-foot high Soundwall S431, which is an in-kind replacement soundwall. The soundwall analysis summarized in Table G-18 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 24 and 25 in Appendix A3 show these receivers.

Receiver R6.24: Traffic noise impacts would occur at three single-family residences along the northbound side of I-405 on Yellowtail Drive between Silverfox Road and Druid Lane. This receiver is protected by an existing 10-foot high soundwall located along Old Ranch Parkway. However, replacing the existing soundwall with a higher soundwall would not provide 5 dB or more of noise reduction. The soundwall analysis is summarized in Table G-18 demonstrates that 5 dB or more of noise reduction would not be achieved at the impacted residences. Figure 16 in Appendix A3 shows this receiver.

Receivers R6.26 through R6.29: Traffic noise impacts would occur at nine single-family residences along the northbound side of I-405 on Yellowtail Drive between Silverfox Road and Druid Lane despite the presence of Soundwall S434 which is a 14-foot high in-kind replacement soundwall. The soundwall analysis summarized in Table G-18 demonstrates that replacing the in-kind replacement soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figure 24 in Appendix A3 shows these receivers.

Receivers R6.31 and R6.34A: Traffic noise impacts would occur at the frequent outdoor use areas of five single-family residences along the northbound side of I-405 on Yellowtail Drive east of Druid Lane and on Martha Ann Drive at Spur Lane despite the presence of an existing 14 to 14 feet 4 inch high soundwall. This existing soundwall has been proposed for the SR-22 West

County Connectors Project and currently does not exist. The soundwall analysis summarized in Table G-18 demonstrates that replacing the existing soundwall with one at a greater height would not provide 5 dB or more of noise reduction at these residences. Figures 24 and 25 in Appendix A3 show these receivers.

Receivers R6.37 through R6.39, R6.41 through R6.43, R6.45, and R6.46: Traffic noise impacts would occur at 20 single-family residences along the northbound side of I-405 on Martha Ann Drive between Tigertail and Salmon Drives despite the presence of an intervening existing and an in-kind replacement soundwall. Noise reduction of a soundwall higher than 16 feet was not analyzed as part of this traffic noise impact study. Figures 25 and 26 in Appendix A3 show these receivers.

Receivers R6.73 through R6.75, R6.77, R6.79, and R6.80: Traffic noise impacts would occur at 35 single-family residences along the northbound side of I-405 on Martha Ann Drive between Piedmont Avenue and Shakespeare Drive despite the presence of an existing and 16-foot high soundwall. Noise reduction of a soundwall higher than 16 feet was not analyzed as part of this traffic noise impact study. Figures 25 and 26 in Appendix A3 show these receivers.

Areas with Unusual and Extraordinary Abatement

Receivers where the predicted peak hour noise level is at or above 75 dBA are to be considered severely impacted. Where severe impacts are identified, unusual and extraordinary abatement must be considered. If a soundwall is determined to be unreasonable based on cost, providing the soundwall for frequent outdoor use areas will still be required when a 5 dB reduction in traffic noise levels is acoustically feasible.

Receiver R2.46: The predicted peak hour traffic noise level is 75 dBA for this receiver and would be considered severely impacted. Receiver R2.46 represents the frontage unit of the preschool playground associated with Huntington Baptist Church. Soundwall S746 would provide the required 5 dB reduction in traffic noise levels.

Receivers R3.48 and R3.50: Predicted peak hour traffic noise levels are at or above 75 dBA for these receivers and would be considered severely impacted. Receivers R3.48 and R3.50 each represent one single family residence. Soundwall S841 would provide the required 5 dB reduction in traffic noise levels at these residences.

Receivers R4.10 and R4.11: Receivers R4.10 and R4.11 respectively represent three and two frontage units of Cascade Park. The predicted peak hour noise level is 75 dBA for these receivers. Soundwalls S1005 and S1009 would provide the minimum 5 dB reduction in traffic noise for Cascade Park.

Receiver R4.33: The predicted peak hour traffic noise level is above 75 dBA for this receiver and would be considered severely impacted. Receiver R4.33 represents one frontage unit of the pool area at the Motel 6. Soundwall S1006 would provide the required minimum 5 dB reduction in traffic noise to below the severe impact criteria.

Chapter 8. Construction Noise

During the construction phases of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 8-1 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006

Construction noise varies greatly depending on the construction process, type and condition of equipment used, as well as layout of the construction site. Many of these factors are traditionally left to the contractor's discretion, which makes it difficult to accurately estimate levels of construction noise. Construction noise estimates are approximate because of the lack of specific information available at the time of the assessment. Temporary construction noise impacts would be unavoidable at areas located immediately adjacent to the proposed project alignment.

The noise level requirement specified herein shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor.

Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications and S5-310 "Noise Control" of the Standard Special Provisions. According to requirements of these specifications, construction noise cannot exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.

Using alternative warning methods instead of a sound signal should be considered unless required by safety laws. All internal combustion engines must be equipped with the manufacturer-recommended muffler. An internal combustion engine cannot be operated on the job site without the appropriate muffler.

Minor deviations from this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor, if in the opinion of the Resident Engineer, the work will be expedited and sound levels resulting from this work will not cause adverse public reaction.

Chapter 9. References

23 CFR Part 772, 2010. Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 Codes of Federal Regulations, Part 772, April.

Caltrans. 2006. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects, Sacramento, CA, August.

———. 2007. Highway Design Manual, Chapter 1100 Highway Traffic Noise Abatement, July.

———. 2009. Technical Noise Supplement. Sacramento, CA: Environmental Program, Noise, Air Quality, and Hazardous Waste Management Office, Sacramento, CA, October. Available at: (http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf).

———, 2009. California Department of Transportation Web site at: <http://traffic-counts.dot.ca.gov/> California Department of Transportation, December.

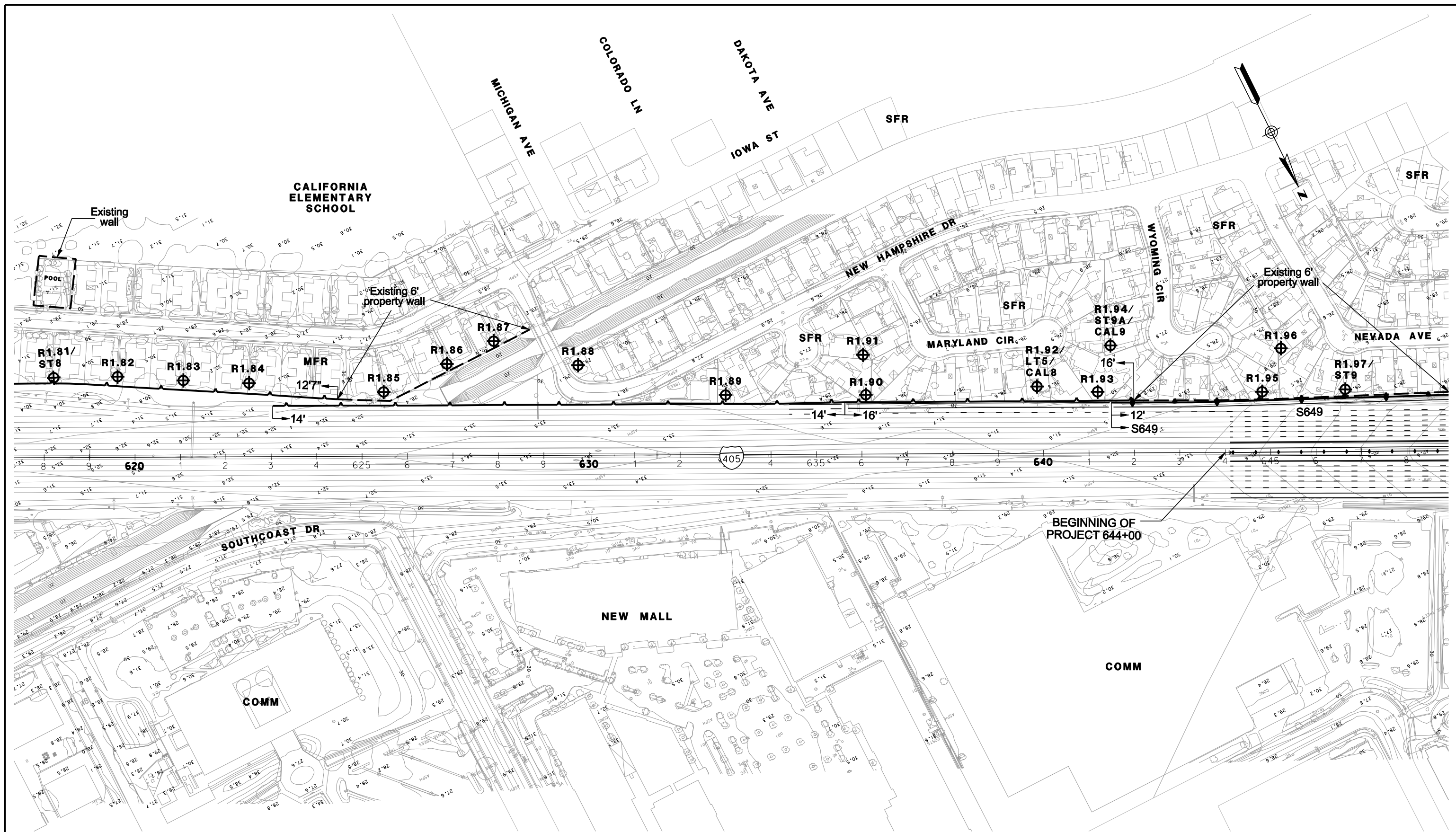
FHWA, 1995. U.S. Department of Transportation. *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, June.

———, 2004. U.S. Department of Transportation, FHWA Traffic Noise Model, TNM 2.5, Report No. FHWA–PD–96–010, Revision No. 1, April 14.

FTA, 2006. Federal Transit Administration. *Transit Noise and Vibration Impact Assessment*, May.

Traffic Report, 2010. Project traffic study prepared by Albert Grover & Associates, October.

Appendix A Modeled Receiver and Feasible Noise Barrier Locations



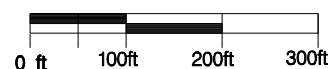
LEGEND

- ⊕ RXX - RECEIVER SITE
- ⊕ LT - LONGTERM MEASUREMENT
- ⊕ ST - SHORTTERM MEASUREMENT
- ⊕ CAL - CALIBRATION SITE

- EXISTING WALL
- SOUNDWALL
- ▲— EXISTING SOUNDWALL
- ◆— REPLACEMENT IN KIND SOUNDWALL

- SFR - SINGLE FAMILY RESIDENCE
- MFR - MULTI-FAMILY RESIDENCE
- COMM - COMMERCIAL
- b - BENEFITED RESIDENCE

1in : 200ft



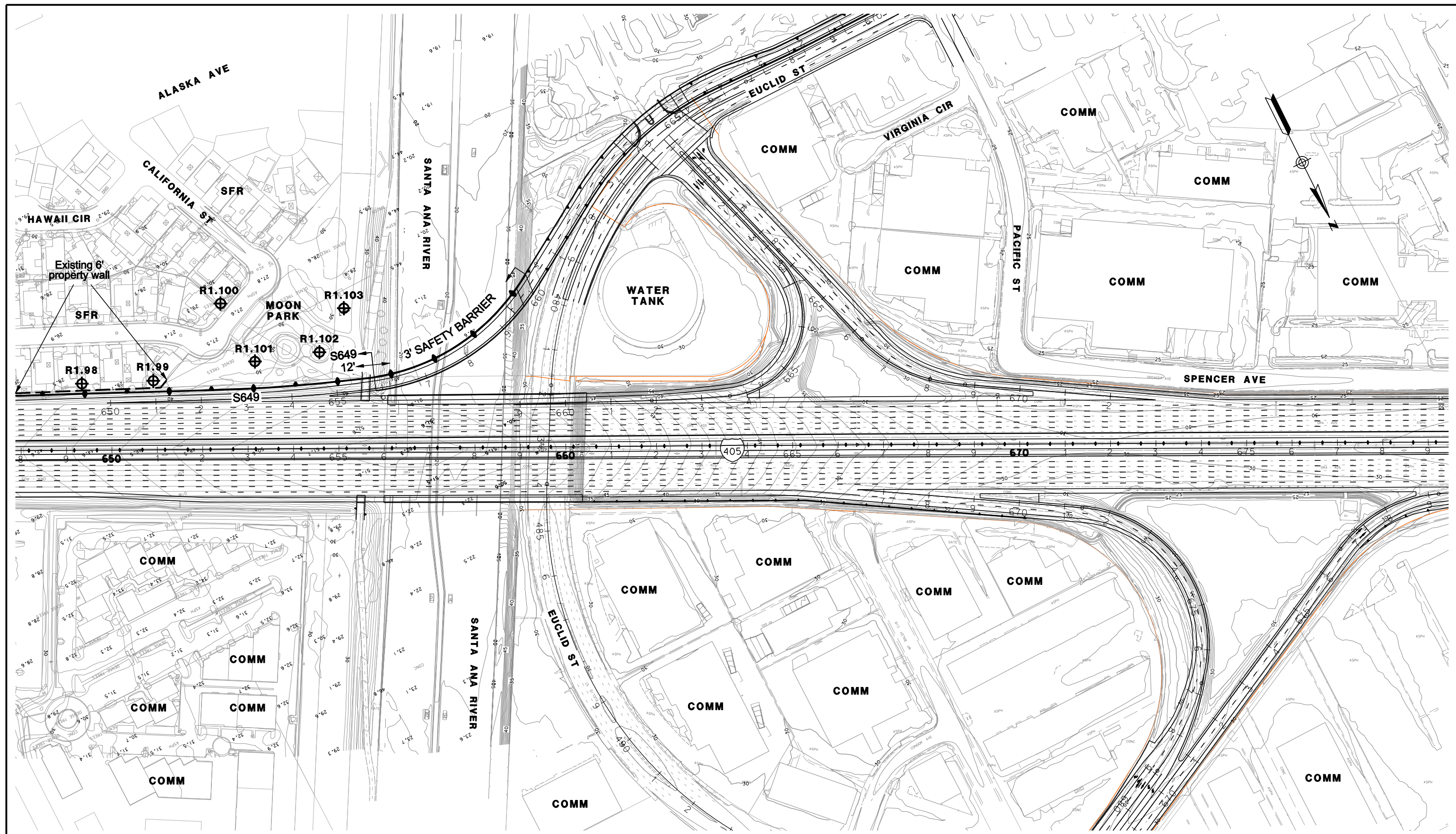
PARSONS

100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

I-405 WIDENING PA/ED PROJECT NOISE RECEIVER & BARRIER LOCATIONS ALT1

FEBRUARY 23, 2011

FIGURE 5



LEGEND

- ⊕ RXX - RECEIVER SITE
- ⊕ LT - LONGTERM MEASUREMENT
- ⊕ ST - SHORTTERM MEASUREMENT
- ⊕ CAL - CALIBRATION SITE

- EXISTING WALL
- SOUNDWALL
- EXISTING SOUNDWALL
- REPLACEMENT IN KIND SOUNDWALL

- SFR - SINGLE FAMILY RESIDENCE
- MFR - MULTI-FAMILY RESIDENCE
- COMM - COMMERCIAL
- b - BENEFITED RESIDENCE

1in : 200ft



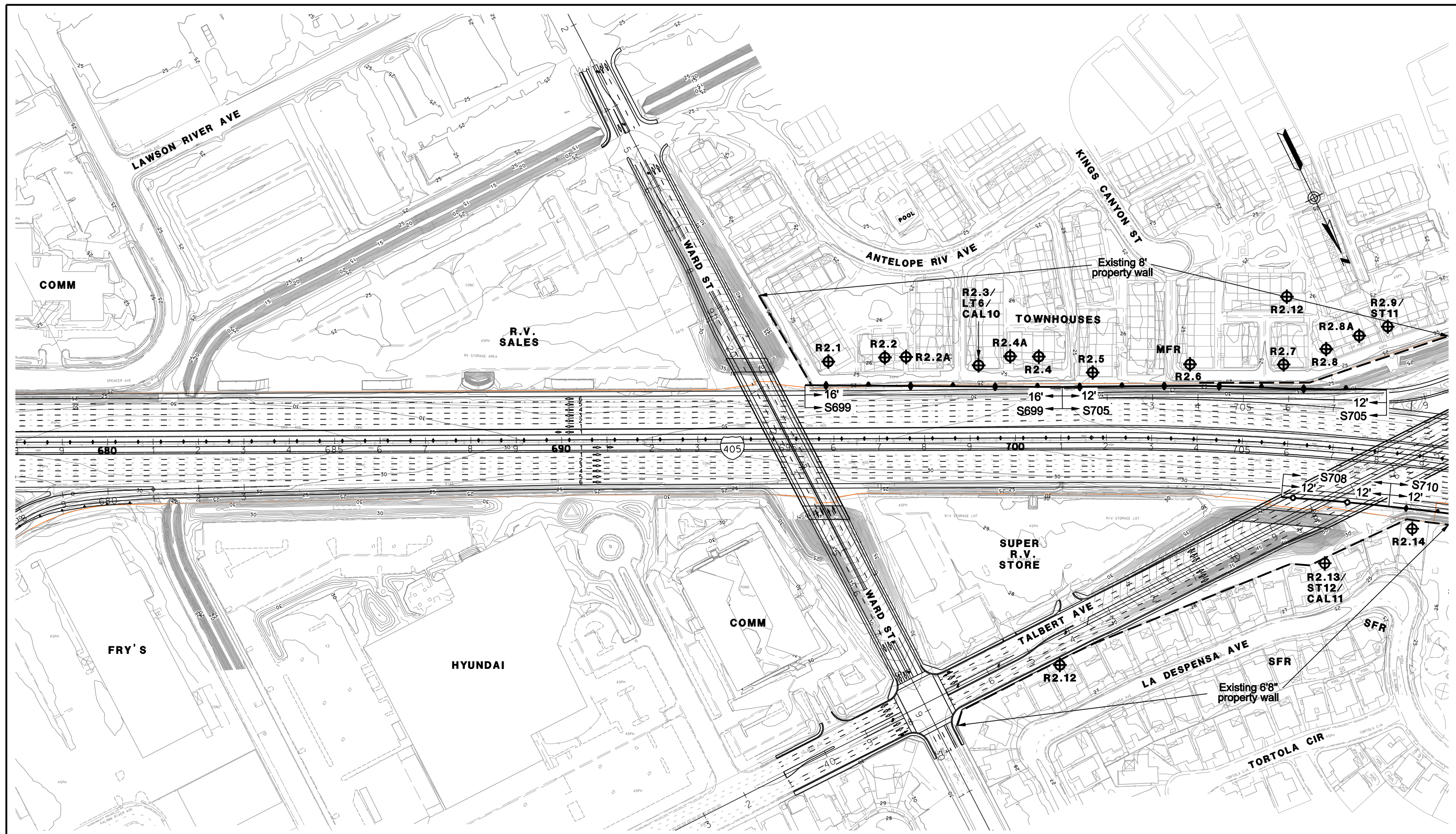
PARSONS

100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

I-405 WIDENING PA/ED PROJECT NOISE RECEIVER & BARRIER LOCATIONS ALT1

FEBRUARY 23, 2011

FIGURE 6



LEGEND

- ⊕RXX - RECEIVER SITE
- ⊕LT - LONGTERM MEASUREMENT
- ⊕ST - SHORTTERM MEASUREMENT
- ⊕CAL - CALIBRATION SITE

- EXISTING WALL
- SOUNDWALL
- EXISTING SOUNDWALL
- REPLACEMENT IN KIND SOUNDWALL

- SFR - SINGLE FAMILY RESIDENCE
- MFR - MULTI-FAMILY RESIDENCE
- COMM - COMMERCIAL
- b - BENEFITED RESIDENCE

1in : 200ft



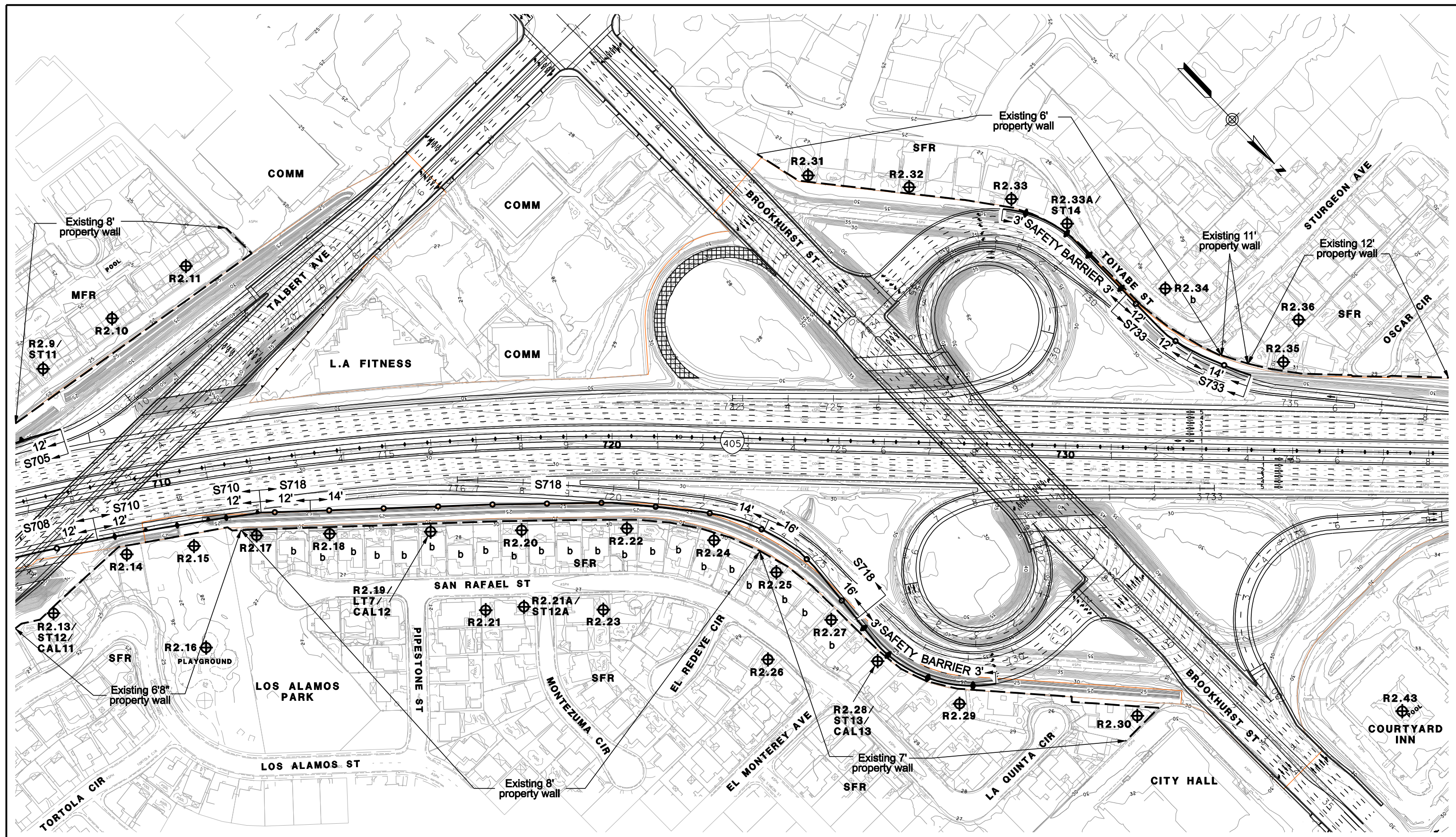
PARSONS

100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

**I-405 WIDENING PA/ED PROJECT
NOISE RECEIVER &
BARRIER LOCATIONS ALT1**

FEBRUARY 23, 2011

FIGURE 7

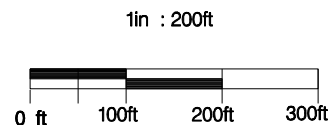


LEGEND

⊕**RXX** - RECEIVER SITE
 ⊕**LT** - LONGTERM MEASUREMENT
 ⊕**ST** - SHORTTERM MEASUREMENT
 ⊕**CAL** - CALIBRATION SITE

--- EXISTING WALL
 --- SOUNDWALL
 --- EXISTING SOUNDWALL
 --- REPLACEMENT IN KIND SOUNDWALL

SFR - SINGLE FAMILY RESIDENCE
MFR - MULTI-FAMILY RESIDENCE
COMM - COMMERCIAL
b - BENEFITED RESIDENCE

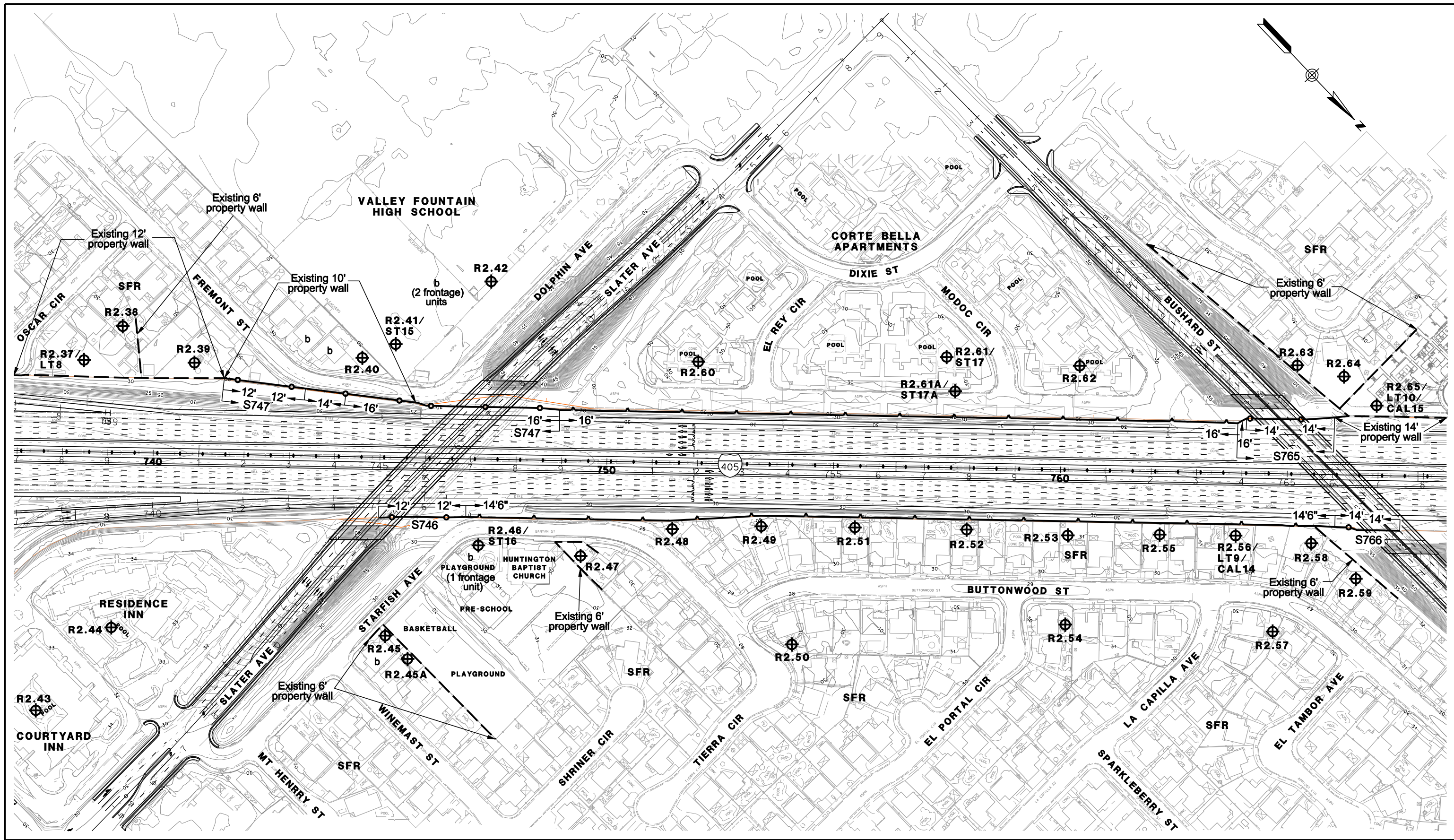


PARSONS
 100 WEST WALNUT ST.
 PASADENA, CA 91124
 (626) 440-6100

**I-405 WIDENING PA/ED PROJECT
 NOISE RECEIVER &
 BARRIER LOCATIONS ALT1**

FEBRUARY 23, 2011

FIGURE 8



LEGEND

⊕RXX - RECEIVER SITE

⊕LT - LONGTERM MEASUREMENT

⊕ST - SHORTTERM MEASUREMENT

⊕CAL - CALIBRATION SITE

--- EXISTING WALL

--- SOUNDWALL

--- EXISTING SOUNDWALL

--- REPLACEMENT IN KIND SOUNDWALL

SFR - SINGLE FAMILY RESIDENCE

MFR - MULTI-FAMILY RESIDENCE

COMM - COMMERCIAL

b - BENEFITED RESIDENCE

1in : 200ft

0 ft 100ft 200ft 300ft

PARSONS

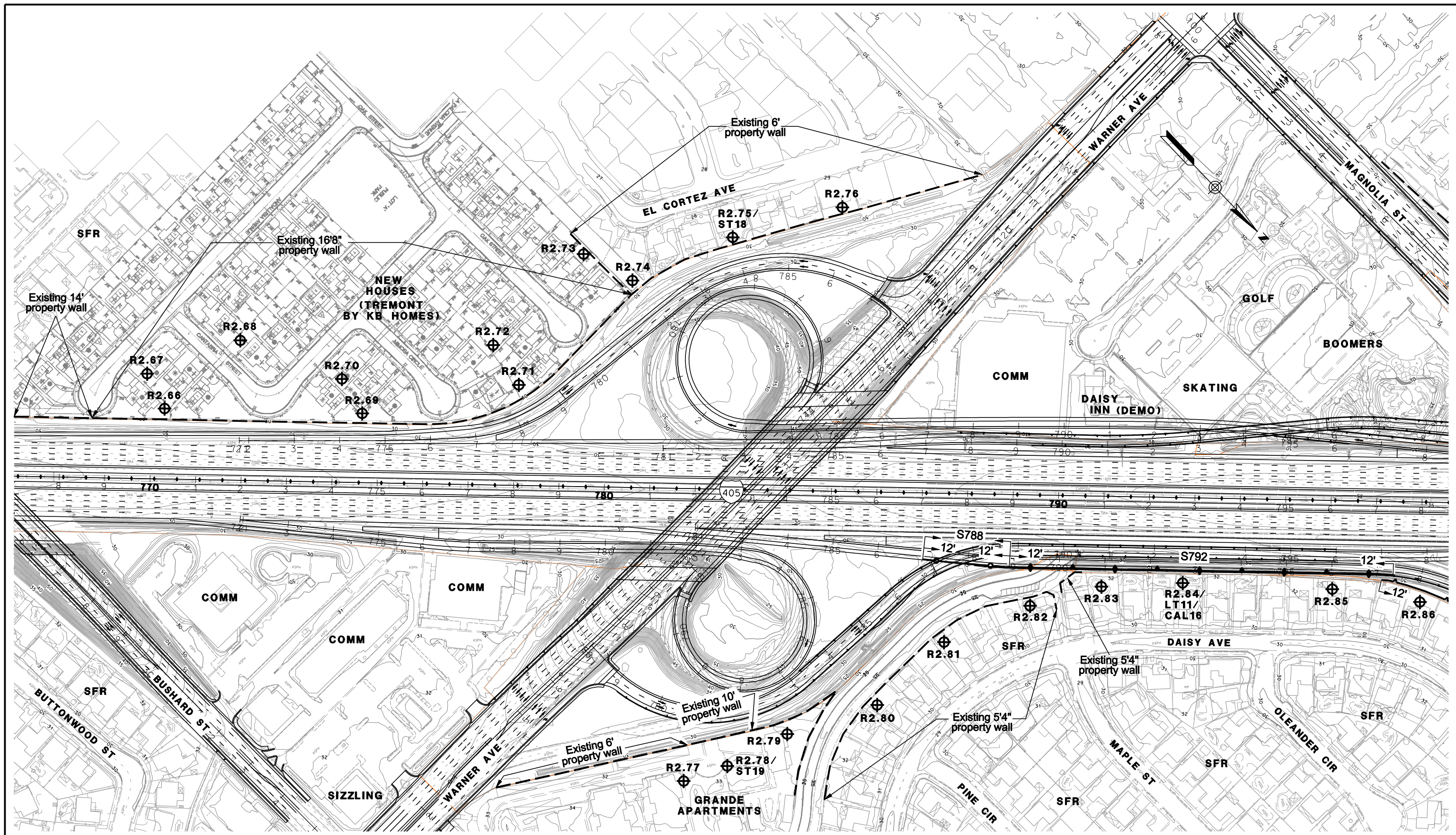
100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

I-405 WIDENING PA/ED PROJECT

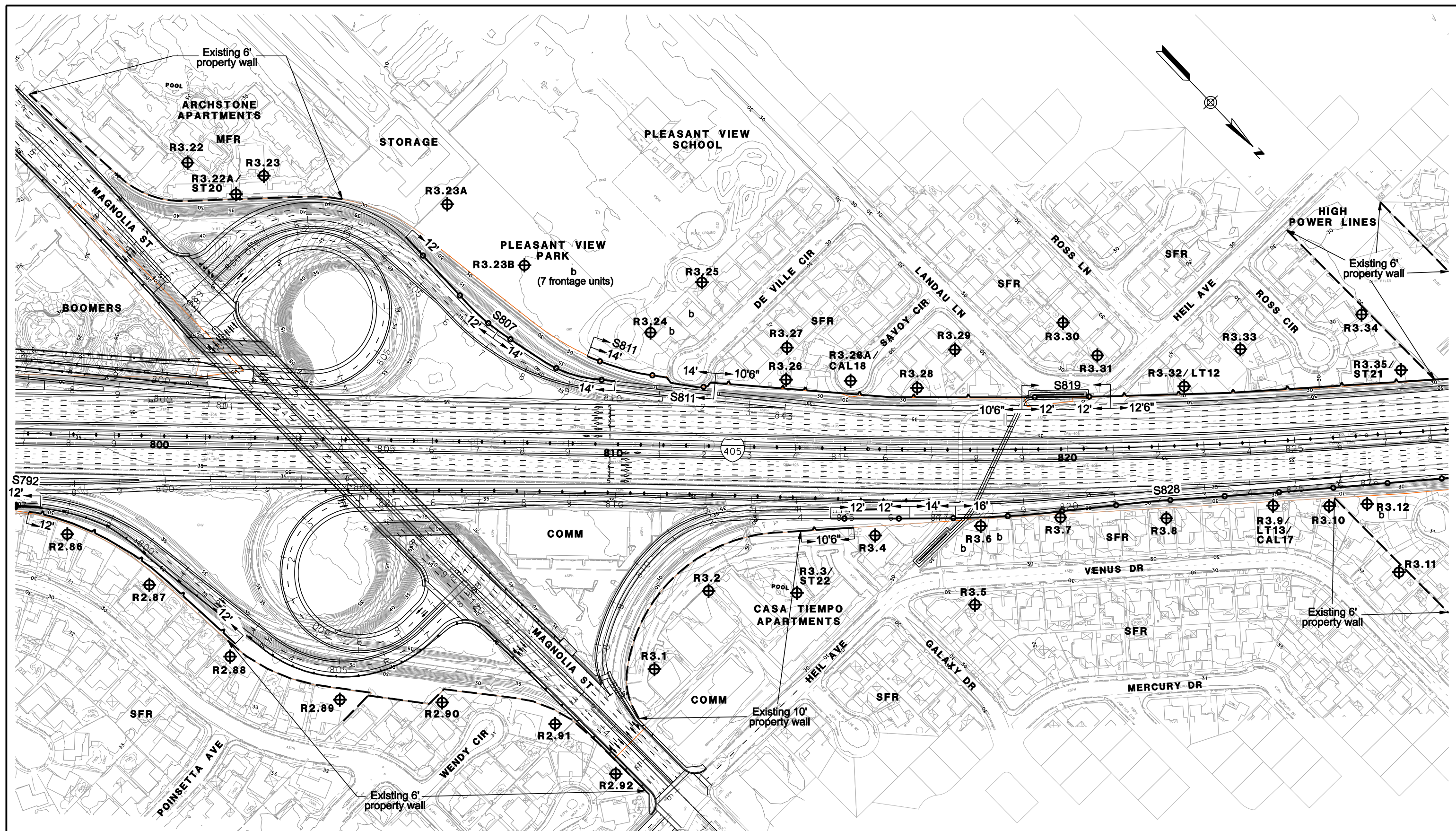
NOISE RECEIVER & BARRIER LOCATIONS ALT1

FEBRUARY 23, 2011

FIGURE 9



LEGEND ⊕ RXX - RECEIVER SITE ⊕ LT - LONGTERM MEASUREMENT ⊕ ST - SHORTTERM MEASUREMENT ⊕ CAL - CALIBRATION SITE		--- EXISTING WALL --- SOUNDWALL --- EXISTING SOUNDWALL --- REPLACEMENT IN KIND SOUNDWALL		SFR - SINGLE FAMILY RESIDENCE MFR - MULTI-FAMILY RESIDENCE COMM - COMMERCIAL b - BENEFITED RESIDENCE		1in : 200ft 0 ft 100ft 200ft 300ft		PARSONS 100 WEST WALNUT ST. PASADENA, CA 91124 (626) 440-6100		I-405 WIDENING PA/ED PROJECT NOISE RECEIVER & BARRIER LOCATIONS ALT1	
						FEBRUARY 23, 2011		FIGURE 10			



LEGEND

⊕RXX - RECEIVER SITE
 ⊕LT - LONGTERM MEASUREMENT
 ⊕ST - SHORTTERM MEASUREMENT
 ⊕CAL - CALIBRATION SITE

--- EXISTING WALL
 --- SOUNDWALL
 --- EXISTING SOUNDWALL
 --- REPLACEMENT IN KIND SOUNDWALL

SFR - SINGLE FAMILY RESIDENCE
 MFR - MULTI-FAMILY RESIDENCE
 COMM - COMMERCIAL
 b - BENEFITED RESIDENCE

1in : 200ft

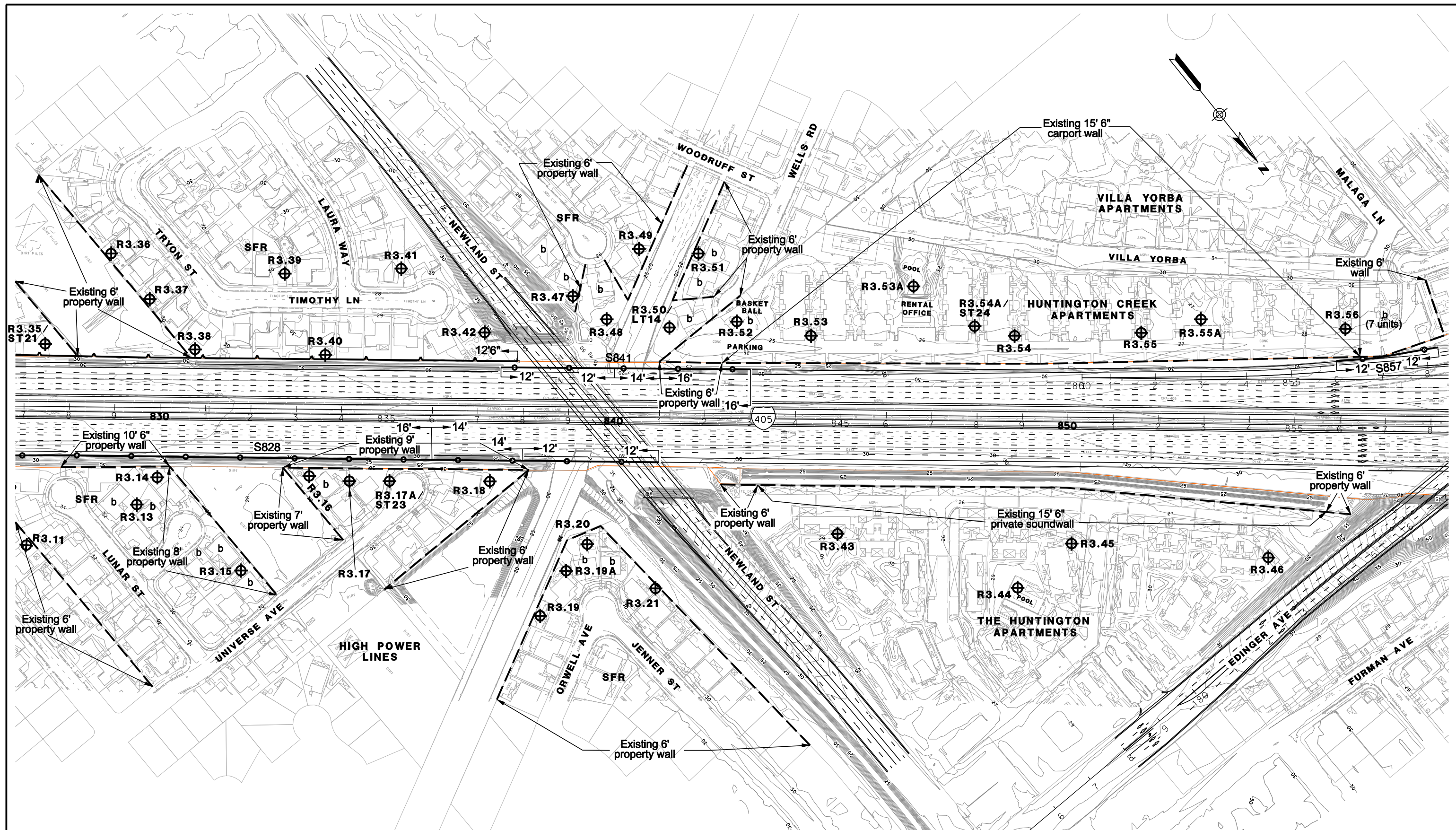
0 ft 100ft 200ft 300ft

PARSONS
 100 WEST WALNUT ST.
 PASADENA, CA 91124
 (626) 440-6100

**I-405 WIDENING PA/ED PROJECT
 NOISE RECEIVER &
 BARRIER LOCATIONS ALT1**

FEBRUARY 23, 2011

FIGURE 11



LEGEND

⊕RXX - RECEIVER SITE

⊕LT - LONGTERM MEASUREMENT

⊕ST - SHORTTERM MEASUREMENT

⊕CAL - CALIBRATION SITE

--- EXISTING WALL

--- SOUNDWALL

--- EXISTING SOUNDWALL

--- REPLACEMENT IN KIND SOUNDWALL

SFR - SINGLE FAMILY RESIDENCE

MFR - MULTI-FAMILY RESIDENCE

COMM - COMMERCIAL

b - BENEFITED RESIDENCE

1in : 200ft

0 ft 100ft 200ft 300ft

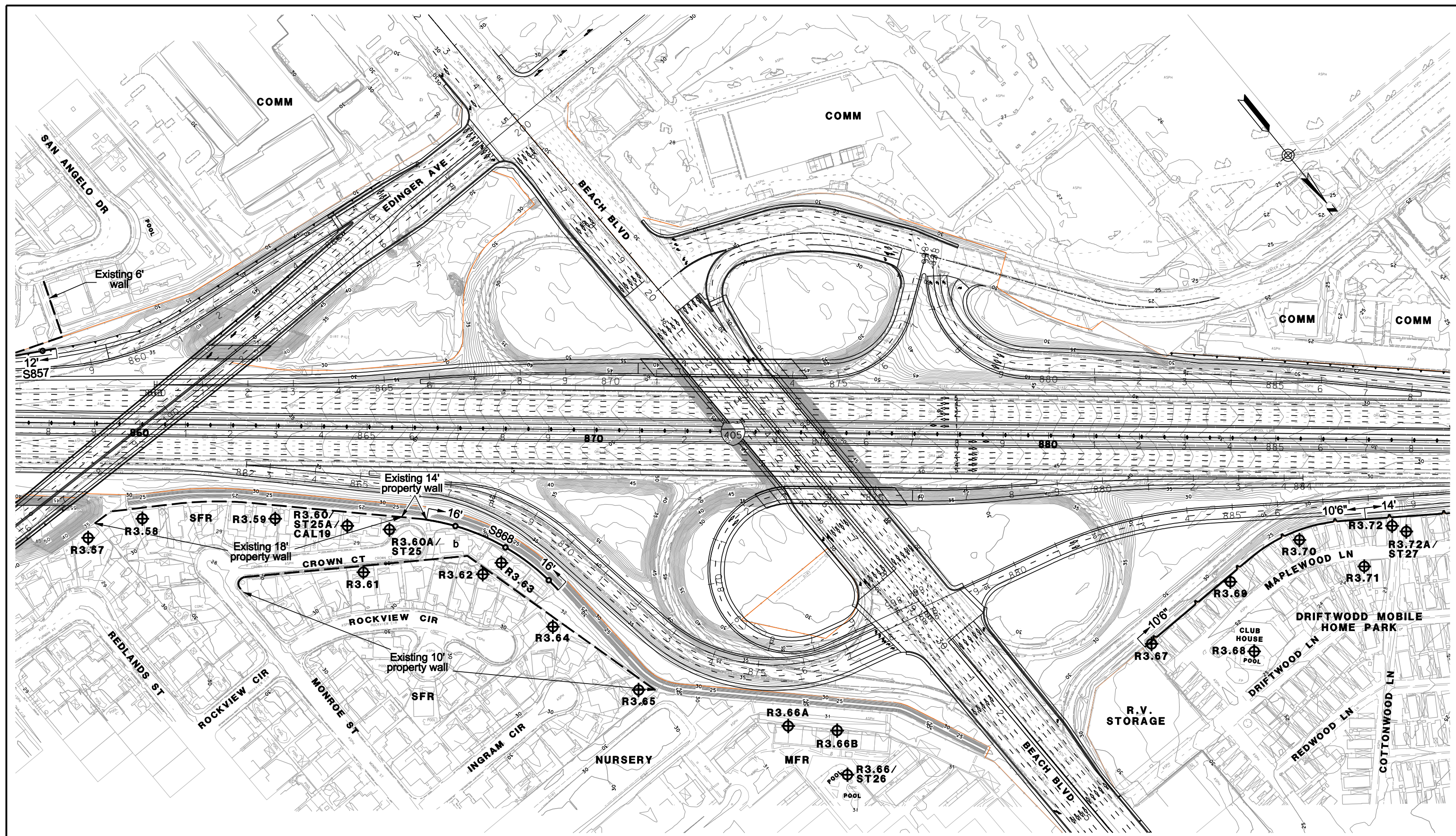
PARSONS

100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

**I-405 WIDENING PA/ED PROJECT
NOISE RECEIVER &
BARRIER LOCATIONS ALT1**

MAY 4, 2011

FIGURE 12

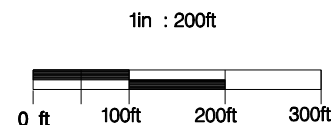


LEGEND

⊕RXX - RECEIVER SITE
 ⊕LT - LONGTERM MEASUREMENT
 ⊕ST - SHORTTERM MEASUREMENT
 ⊕CAL - CALIBRATION SITE

--- EXISTING WALL
 --- SOUNDWALL
 --- EXISTING SOUNDWALL
 --- REPLACEMENT IN KIND SOUNDWALL

SFR - SINGLE FAMILY RESIDENCE
 MFR - MULTI-FAMILY RESIDENCE
 COMM - COMMERCIAL
 b - BENEFITED RESIDENCE

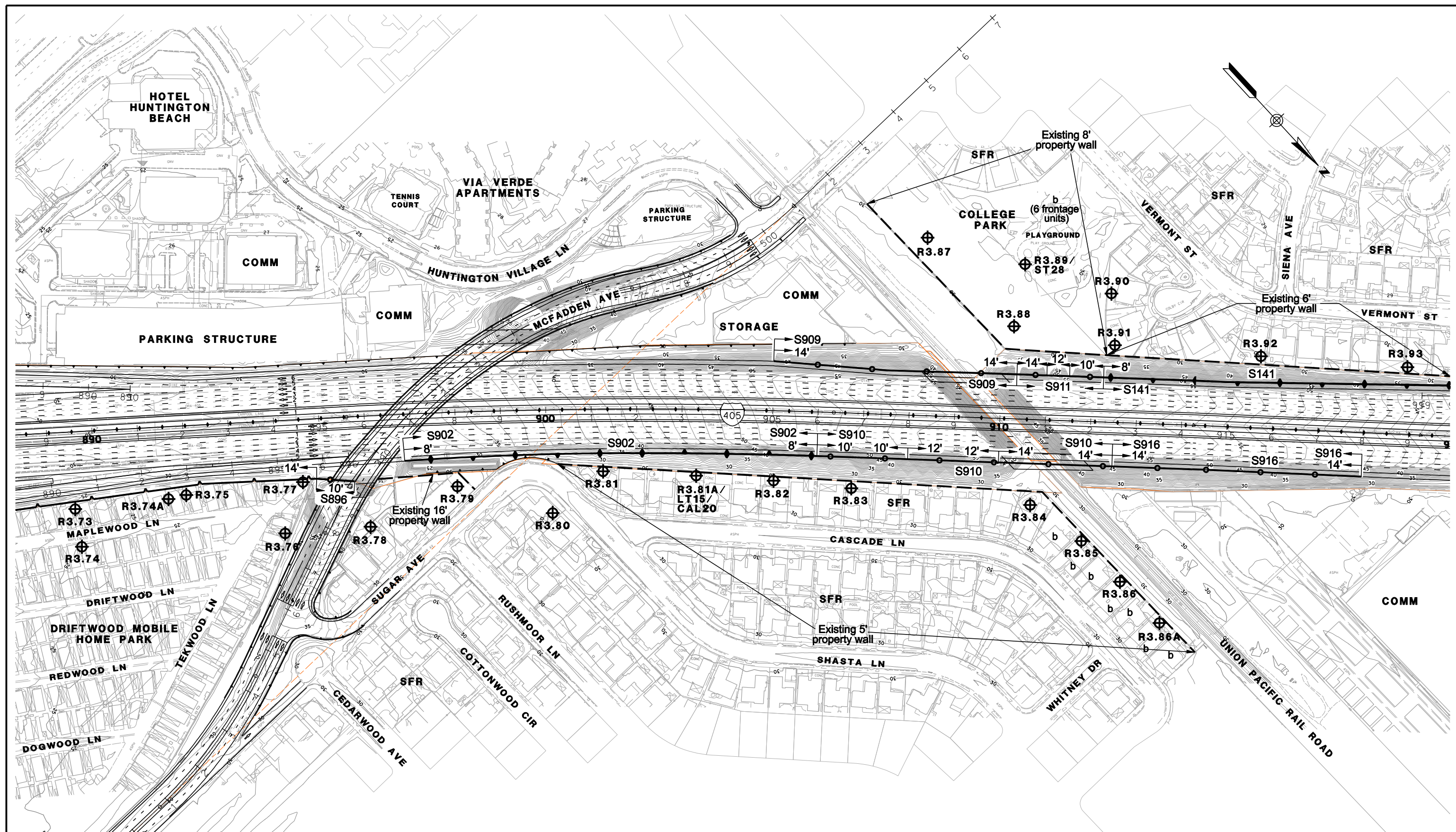


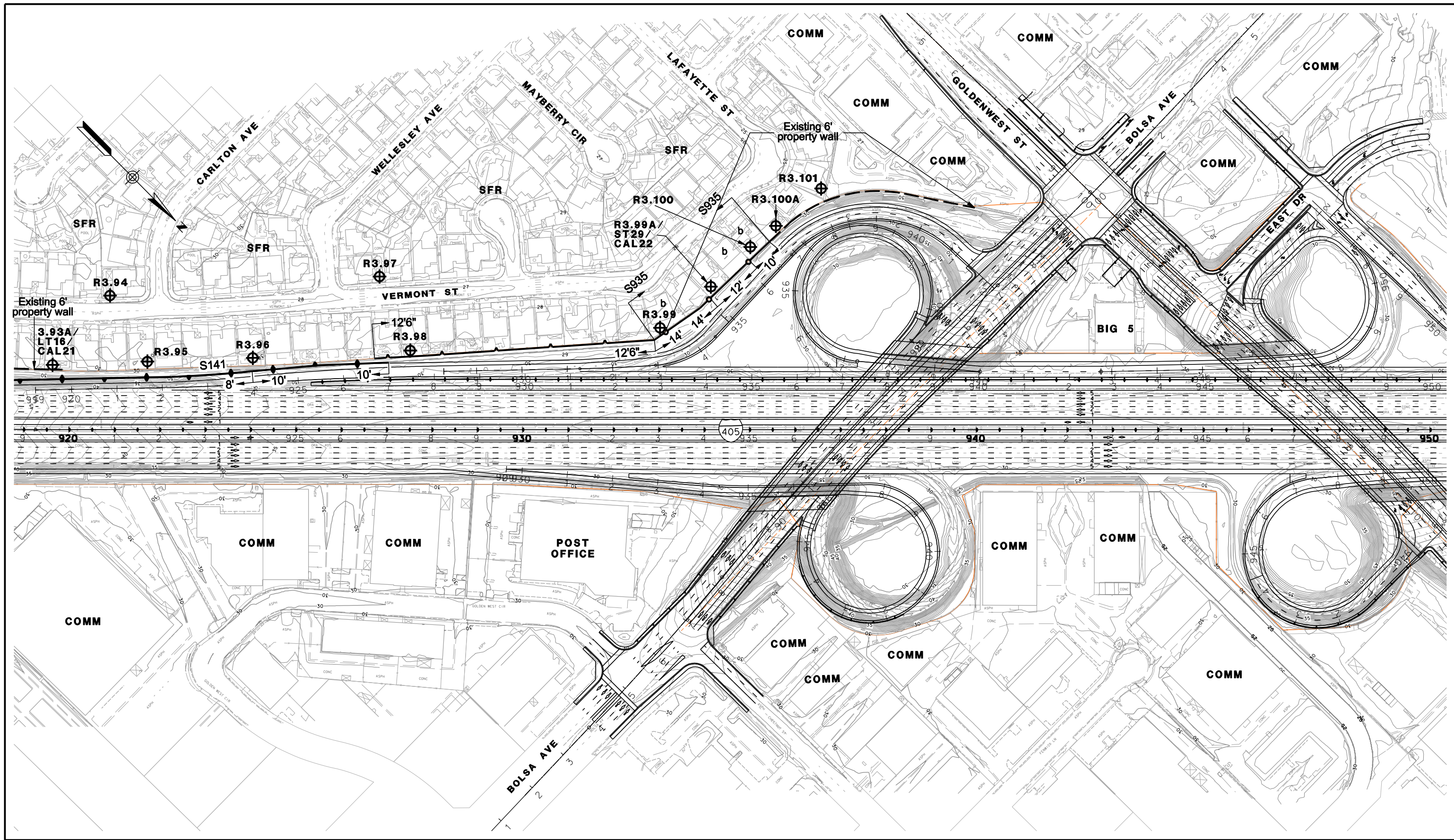
PARSONS
 100 WEST WALNUT ST.
 PASADENA, CA 91124
 (626) 440-6100

**I-405 WIDENING PA/ED PROJECT
 NOISE RECEIVER &
 BARRIER LOCATIONS ALT1**

FEBRUARY 23, 2011

FIGURE 13

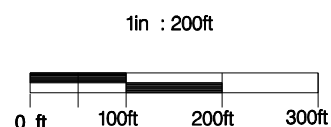




- LEGEND**
- ⊕RXX - RECEIVER SITE
 - ⊕LT - LONGTERM MEASUREMENT
 - ⊕ST - SHORTTERM MEASUREMENT
 - ⊕CAL - CALIBRATION SITE

- EXISTING WALL
- SOUNDWALL
- ▲— EXISTING SOUNDWALL
- ◆— REPLACEMENT IN KIND SOUNDWALL

- SFR - SINGLE FAMILY RESIDENCE
- MFR - MULTI-FAMILY RESIDENCE
- COMM - COMMERCIAL
- b - BENEFITED RESIDENCE



PARSONS
 100 WEST WALNUT ST.
 PASADENA, CA 91124
 (626) 440-6100

**I-405 WIDENING PA/ED PROJECT
 NOISE RECEIVER &
 BARRIER LOCATIONS ALT1**

FEBRUARY 23, 2011

FIGURE 15